

EPA Superfund Preliminary Assessment/Site Inspection:

**ASHLAND/NORTHERN STATES POWER LAKEFRONT
EPA ID: WISFN0507952
10/20/99
ASHLAND, WI**

This document is a combined report of both the Preliminary Assessment and Site Inspection activities.

Reference 14

143023



DAMES & MOORE

A DAMES & MOORE GROUP COMPANY

**1999 SUPPLEMENTAL SITE
INVESTIGATION**

**FOR THE NORTHERN STATES
POWER FACILITY
ASHLAND, WISCONSIN**

OCTOBER 22, 1999

Dames & Moore Project No. 05644-093

A DAMES a MOORE GROUP COMPANY

October 22, 1999

23 Kcssl Court. Suite 211
Madison, Wisconsin 53711-22
608 273 2386 Tel
608 273 3415 Fax

Mr. James R. Dunn
District Hydrogeologist
Wisconsin Department of Natural Resources
P.O. Box 309
Spooner, WI 54801

R.E: Dames & Moore Project No. 05644-093
1999 Supplemental Site Investigation
Northern States Power, Ashland, Wisconsin

Dear Mr. Dunn:

On behalf of Northern States Power (NSP), Dames & Moore has prepared this report summarizing additional site investigation work completed at NSP's Ashland facility in August 1999. This request for additional site characterization results from review comments you provided on Dames & Moore's March 1999 report entitled Supplemental Facility Site Investigation and Remedial Action Options Evaluation Report. We discussed these comments in a meeting held on July 14, 1999. Subsequently, we provided a Work Plan dated July 29, 1999, which you conditionally approved on August 5, 1999. All work was completed in accordance with the approved Work Plan, and the VVDNR approval letter.

Please note that we have included recommendations for obtaining further data to optimize the design for the proposed interim action on the Copper Falls Aquifer. These include the installation of two deep piezometers, and collection and analysis of a complete round of groundwater quality data from all site wells. Because of the imminent onset of poor weather conditions in Ashland at this time of year, we would like to perform this work as soon as possible.

Sincerely

DAMES & MOORE

David P. Trainor, P.E., P.G.
Principal

Mark S. McColloch, P.G.
Project Geologist

cc: Mark Gordon, WDNR Madison
Jim Musso, NSP
John Wilson, NSP
Dave Crass, Michael Best & Friedrich

Offices Worldwide

CERTIFICATION

I, David P. Trainor, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

David P. Trainor, P.E.
Senior Project Manager

P.E. Number Date

I, Mark S. McColloch, hereby certify that I am a Hydrogeologist as that term is defined in s. NR 712.03(1) Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Mark S. McColloch, P.G.
Hydrogeologist

P.G. Number Date

TABLE OF CONTENTS

	Page
1.0 INTRODUCTION	1
1.1 Site Description	1
1.2 Site History	1
1.3 Purpose	1
1.4 Scope of Work	2
2.0 SUPPLEMENTAL SITE INVESTIGATION ACTIVITIES	3
2.1 Ravine Delineation Borings and Monitoring Well Installation ...	3
2.2 Side Gradient Monitoring Well Installation	3
2.3 Survey, Well Development, and Fluid Level Measurements	4
2.4 Groundwater Sample Collection	5
3.0 SUPPLEMENTAL SITE INVESTIGATION RESULTS	6
3.1 Soil Sample Results	6
3.2 Groundwater Sample Results	6
4.0 SUMMARY AND CONCLUSIONS	8
5.0 RECOMMENDATIONS	10

TABLES

Table 1	Summary of Monitor Well and Piezometer Construction
Table 2	Summary of Groundwater Elevations
Table 3	Summary of Free Phase Hydrocarbon Thicknesses
Table 4	August 1999 Soil Sample Results
Table 5	August 1999 Groundwater Monitoring Results - VOC and Inorganics
Table 6	August 1999 Groundwater Monitoring Results - SVOCs

FIGURES

Figure 1	Site Location Map
Figure 2	Existing Conditions

APPENDICES

Appendix A	Soil Boring Logs, Well Construction Forms and Well Development Forms for 13-35, B-3) 6 1MW- 16, B-3) 7, MW- 17, and MW- I 7A
Appendix B	Laboratory Reports for the August 1999 Groundwater Sample
Appendix C	Laboratory Reports for B-35, B-') 6/MW-16, and B-37 Borings

1.0 INTRODUCTION

1.1 Site Description

As shown on Figure 1, the site is located approximately 1,000 feet southeast of the shore of Chequamegon Bay on Lake Superior. The site is occupied by a small office building and parking lot fronting on Lakeshore Drive. A larger vehicle maintenance building, offices, and parking lot area are located south of St. Claire Street between Prentice Avenue and 3rd Avenue East. A gravel parking and storage yard area occupies an area north of St. Claire Street. A large microwave tower is located on the north end of the storage yard. The office building and vehicle maintenance building are separated by an alley.

The area occupied by the buildings and parking lots is relatively flat, at an elevation of approximately 6-40 feet above mean sea level. Drainage from the NSP property is to the north. To the northwest, the site slopes steeply to the Wisconsin Central Limited Railroad, and then to the City of Ashland's Kreher Park, beyond which is Chequamegon Bay.

1.2 Site History

A comprehensive site background is presented in Section 1.1 of the Site Investigation and Remedial Action Plan prepared for NSP by Dames & Moore on August 1, 1995. This background includes information on the site's former usage as a Manufactured Gas Plant (MGP) facility, the historical filling of the former ravine, and the results of environmental investigations conducted by the WDNR on the adjacent property to the north at Kreher Park. Subsequent phases of investigation were completed in 1996, 1997, and 1998. Results of these investigations were presented in previous reports presented to the Wisconsin Department of Natural Resources (WDNR), the most recent of these was the Supplemental Facility Site Investigation and Remedial Action Options Evaluation Report, dated March 1, 1999.

1.3 Purpose

The purpose of this report is to present the results of a supplemental site investigation completed between August 23 and September 2, 1999. This site investigation was completed in response to the WDNR comments on Dames & Moore's March 1, 1999 report entitled Supplemental Facility Site Investigation and Remedial Action Options Evaluation Report. A Work Plan was prepared following a July 14, 1999 meeting between NSP and the WDNR to discuss site investigation results presented in the March report. The July 29, 1999 Work Plan was subsequently approved in an August 5, 1999 letter.

1.4 Scope of Work

The scope of work completed during the supplemental site investigation includes the following:

- The collection of soil samples from soil borings, and installation of a monitoring well, to identify the extent of the ravine fill upgradient from well MW- 15;

- The installation of a water table observation well in the Miller Creek Formation, and an adjacent piezometer in the upper Copper Falls Aquifer, side gradient of the former MGP facility to identify the lateral extent of groundwater contamination;
- Development of new monitoring wells, and survey of the PVC well casings as reference elevations;
- Fluid level measurements in all monitoring wells on the NSP property and in all wells on the Kreher Park property; and
- The collection of groundwater samples from all monitoring wells on the NSP property and from all wells on the Kreher Park property.

2.0 SUPPLEMENTAL SITE INVESTIGATION ACTIVITIES

2.1 Ravine Delineation Borings and Monitoring Well Installation

Dames & Moore coordinated the collection of soil samples from 3 additional soil borings to further define the lateral extent of fill within the backfilled ravine. Borings B-35, B-36, and B-37 were advanced south of LNIW-15, in a parking lot south of the vehicle maintenance building. All boreholes were advanced with a truck mounted drill rig utilizing 41/4-inch ID hollow stem augers. Soil samples were collected at 2.5 foot intervals using a split-barrel sampler. Soil cuttings were placed in 55-gallon drums, temporarily stored on site, and subsequently hauled to Superior Environmental Service's Seven Mile Creek landfill near Eau Claire for disposal. A Dames & Moore geologist supervised drilling activities, and visually classified soil units in accordance with the Unified Soil Classification System. Soil boring and monitoring well locations are shown in Figure 2. Soil boring logs, well construction forms, and borehole abandonment forms are included in Appendix A.

One soil sample per boring was selected for laboratory analysis. These samples were analyzed for volatile organic compounds (VOCs) and inorganics (metals and cyanide), included in Appendix A of the Spill Response Agreement. Borings B-35 and B-37 were abandoned with granular bentonite after sample collection; water table observation well MW-16 was installed in the B-36 boring. This well was constructed with 2-inch diameter schedule 40 PVC well casing and screen. The 10-foot screen was placed between 6 and 16 feet. A sand pack was placed around the well screen, and the annular space was backfilled with granular bentonite as the augers were removed. The well was encased in a protective well casing with a locking cap. A summary of well construction elevations for all site wells, including MW-16, is included in Table 1.

2.2 Side Gradient Monitoring Well Installation

Wells MW-17 and MW-17A were installed on NSP property north of St. Clair Street and east of Prentice Avenue, side gradient from the former MGP facility. Well MW-17 was installed in the Miller Creek Formation as a water table observation well, and adjacent well MW-17A was installed as a piezometer in the underlying Copper Falls formation. Both wells were constructed with 2-inch diameter schedule 40 PVC well casing and screen. Well MW-17 was constructed with a 10-foot screen and placed between 5 and 15 feet. Well MW-17A was constructed with a 5-foot screen placed between 50 and 55 feet. Sand packs were placed around each well screen, and the annular space was backfilled with granular bentonite as the augers were removed. Both wells were encased in a protective well casing with a locking cap. A summary of well construction elevations for all site wells is included in Table 1.

Both boreholes were advanced with a truck mounted drill rig utilizing 41/4-inch ID hollow stem augers. Soil samples were collected at 2.5 foot intervals using a split-barrel sampler. As with previous site work, soil cuttings were placed in 55-gallon drums, temporarily stored on site, and subsequently hauled to Superior's Seven Mile Creek landfill near Eau Claire for disposal. A Dames & Moore geologist supervised drilling activities, and

visually classified soil units in accordance with the Unified Soil Classification System. Monitoring well locations are shown in Figure 2. Soil boring logs and well construction forms are included in Appendix A.

2.3 Survey, Well Development, and Fluid Level Measurements

Following well installation, the elevation of the top of the PVC well casing on wells MW-16, MW-17, and MW-17A were surveyed as reference elevations. These new monitoring wells were also developed by surging and bailing. Purge water was placed in 55 gallon drums, temporarily stored on site, and later transported to the City of Ashland wastewater treatment plant for disposal. Well development forms are included in Appendix A.

Prior to sample collection, static fluid levels were measured in all site monitoring wells. Static water levels were also measured in wells MW-1 (NET), MW-2 (NET), MW-2A (NET), MW-2B (NET), MW-3 (NET), MW-7A, TW-11, and TW-12 at Kreher Park. For the flowing artesian wells (MW-7A, MW-2A, and MW-2B), additional PVC sections were connected to the well head to measure height above the top of the PVC well casing. Water levels measured in 1997, 1998, and 1999 are summarized in Table 2.

Free phase hydrocarbons consisting of dense non-aqueous phase liquids (DNAPL) were encountered in wells EW-1, MW-9, TW-13, MW-13A, MW-13B, and MW-15 near the NSP facility, and in well MW-7 at Kreher Park. Free phase hydrocarbons were measured at thicknesses greater than 5-feet in wells EW-1, MW-7, MW-13A, MW-13B, and MW-15. In accordance with the approved Work Plan, groundwater samples were not collected from these wells. Hydrocarbon levels and thicknesses measured in 1998 and 1999 are summarized in Table 3.

2.4 Groundwater Sample Collection

Groundwater samples were collected from monitoring wells located on the NSP property and in Kreher Park between August 23rd and 30th. Groundwater samples were collected from the following wells on the NSP property:

MW-1	MW-4B	MW-6	MW-9A	TW-13
MW-2	MW-5	MW-6A	MW-10	MW-14
MW-3	MW-5A	MW-8	MW-10A	MW-16
MW-4	MW-5B	MW-8A	MW-11	MW-17
MW-4A	MW-5C	MW-9	MW-12	MW-17A

Additionally, samples were collected from the following wells located in Kreher Park.

MW-1 (NET)	MW-2B (NET)	TW-11
MW-2 (NET)	MW-3 (NET)	TW-12
MW-2A (NET)	MW-7A	

A delay in shipping by the carrier resulted in several samples arriving at the laboratory at a temperature above 4C. Consequently, samples were collected from wells MW-3, MW-4, MW-4A, MW-4B, MW-7A, MW-12, and MW-14 on September 2, 1999, and shipped to the laboratory for analysis.

The sample color, odor, and turbidity were recorded on field sampling forms along with depth to water and depth to bottom measurements. Water level measurements were used to calculate purge well volumes. Four well casing volumes were removed from each well prior to sample collection. All purge water was collected in a 55 gallon drums, and temporarily stored on site. This water was later transported to the City of Ashland wastewater treatment plant for disposal.

Disposable bailers were used to collect each sample. Samples were placed in laboratory containers, held in coolers on ice, and shipped to Northern Lake Service, Inc. of Crandon, Wisconsin for analyses. All groundwater samples were analyzed for the VOCs, SVOCs, and inorganics (metals and cyanide) included in Appendix A of the Spill Response Agreement. Samples collected for metals analysis were filtered in the field at the time of sample collection. Duplicate samples were collected from wells MW-2, MW-4, MW-5A. MW-2A(NET), and TW-11. Four trip blank samples, one per shipment, accompanied the sample bottles and were analyzed for VOCs. Results are summarized in Tables 5 and 6, and laboratory reports are included in Appendix B.

3.0 SUPPLEMENTAL SITE INVESTIGATION RESULTS

3.1 Soil Sample Results

Soil samples were collected from the B-35, B-36, and B-37 borings at intervals between 8 to 10 feet, 3 to 5 feet, and 10 to 12 feet, respectively. Samples were analyzed for VOC, SVOCs, cyanide, and metals (arsenic, chromium, copper, iron, lead, nickel, and zinc) included in Appendix A of the Spill Response Agreement. Sample results are summarized in Table 4, and laboratory reports are included in Appendix C.

As shown in Table 4, arsenic was detected in soil samples collected from B-35 and B-37 at concentrations above the residual contaminant level (RCL) for industrial land use. Chromium and lead were detected in soil samples collected from all three borings, but at concentrations below the RCL. No RCLs have been established for the remaining metals (copper, iron, nickel, and zinc) detected in soil samples. Cyanide was not detected above the limit of detection in any sample.

Naphthalene was detected in the soil sample collected from the B-36 boring at a concentration above the limit of detection (LOD), but below the limit of quantitation (LOQ). The laboratory considers concentrations detected below the LOQ to be "less than certain." Regardless, naphthalene was not detected above the groundwater pathway RCL. Additionally, naphthalene was not detected in the SVOC analysis. No other VOCs or SVOCs were detected in soil samples collected from these borings.

3.2 Groundwater Sample Results

Groundwater samples were analyzed for VOC, SVOCs, cyanide, and metals (arsenic, chromium, copper, iron, lead, nickel, and zinc) included in Appendix A of the Spill Response Agreement. Results for groundwater samples collected from wells on the NSP property are summarized in Table 5, and samples collected from the Kreher Park property are summarized in Table 6. Laboratory reports are included in Appendix C.

In general, results for groundwater samples collected in August 1999 are similar to sample results from previous phases of investigation. DNAPL was detected in wells MW-15, MW-9, and TW-13 at thicknesses of 10.6 feet, 1.6 feet, and < 6-inches, respectively. Elevated levels of dissolved phase constituents were detected in samples collected from wells MW-3, MW-4, MW-9, MW-12, TW-13, and MW-14 located in the backfilled ravine south of St. Claire Street. Samples collected from wells located northeast (MW-3 and MW-17), south east (MW-16), south (MW-6), and west (MW-16 and MW-10) of the former MGP indicate that groundwater contamination is limited to the backfilled ravine. Samples collected from wells MW-1 and MW-2 indicate that the plume width narrows north of St. Claire Street. Samples collected from MW-5 (located at the mouth of the backfilled ravine) indicate that DNAPL is not present north of St. Claire Street; the concentration of dissolved phase constituents decrease with distance from the former MGP.

Samples collected from shallow wells MW-1(NET), MW-2(1NET), MW-3(INET), TW-11, and TW-12 in Kreher Park indicate that groundwater contamination is

also present within the lakefront fill material. DNAPL was measured at a thickness of 10.44 feet in well MW-7 located on Kreher Park.

Groundwater samples collected from wells screened in the upper Copper Falls aquifer indicate that the highest levels of contamination are present beneath the backfilled ravine south of St. Claire Street. DNAPL was measured at thicknesses of 19.2 feet in EW-1, and at a thickness of 8.5 feet in well MW-13A. Elevated levels of dissolved phase constituents were detected in samples collected from wells MW-4A, MW-5B, and MW-8A on the NSP property, and in samples collected from MW-2B(NET) and MW-7A in Kreher Park. Samples collected from wells located northeast (MW-8A and MW-17A), south (MW-6A), and west (MW-10A) of the former MGP indicate that groundwater contamination is limited to the area located beneath the backfilled ravine.

Samples collected from wells MW-2A and MW-5C indicate that the concentrations of dissolved phase constituents decrease with depth in the Copper Falls Aquifer downgradient from the facility. The MW-4B sample indicates that dissolved phase constituents decrease with depth upgradient from the backfilled ravine. However, site investigation results indicate that contaminants have migrated vertically beneath the backfilled ravine south of St. Claire Street. Approximately 26 feet of DNAPL was measured in well MW-1313. Samples collected from MNV-9A indicate that dissolved phase constituents have migrated vertically into the lower Copper Falls Aquifer. As shown in Table 5, total VOCs were detected at 47,040 ug/L, and SVOCS were detected at 4,470 ug/L in the August 1999 MW-9A sample. Constituents of regulatory concern detected in this sample included benzene, ethylbenzene, toluene, xylene, and naphthalene. The concentrations of these dissolved phase constituents have increased since samples were last collected from well MW-9A. In September 1997, total VOCs were detected at 201 ug/L, and in 1996 total VOCs were detected at 103 ug/L in samples collected from this well.

4.0 SUMMARY AND CONCLUSIONS

A supplemental site investigation was completed in August 1999 in response to a request for additional information from the WDNR. The purpose of this investigation was to define the lateral extent of the ravine fill and the lateral extent of DNAPL south of well MW-15, and to identify the lateral extent of groundwater contamination side gradient from the former MGP. This investigation included the advancement of three soil borings (B-35, B-36, and B-37), the installation of three monitoring wells (MW-16, MW-17, and MW-17A), fluid level monitoring, and groundwater monitoring.

Native soil was encountered beneath the asphalt pavement in borings B-35, B-36, and B-37 advanced in an east-west trending line approximately 40 feet south of MW-15. Soil samples collected from these borings and a groundwater sample collected from MW-16 (installed in the B-36 boring), indicate that contamination is not present south of the backfilled ravine in this area. Additionally, samples collected from wells MW-17 and MW-17A installed in the NSP storage yard northeast of the former MGP facility indicate that groundwater contamination is not present at this sidegradient location.

In general, fluid level and groundwater monitoring results for samples collected in August 1999 are similar to sample results from previous phases of investigation. DNAPL was measured in wells MW-9, TW-13, and MW-15 screened in the backfilled ravine south of St. Claire Street, and in MW-7 located on the Kreher Park property. DNAPL was also encountered in wells EW-1, MW-13A, and MW-13B screened in the underlying Copper Falls Aquifer. In accordance with the approved Work Plan, samples were not collected from wells EW-1, MW-7, MW-13A, MW-13B, and MW-15 because DNAPL was measured at thickness greater than 5 feet in these wells. Perimeter wells installed in the Miller Creek formation indicate that DNAPL and dissolved phase groundwater contamination is limited to the backfilled ravine south of St. Claire Street; lower levels of groundwater contamination (and no DNAPL) were found in wells located in the ravine north of St. Claire Street. Samples collected from shallow wells located on the Kreher Park property indicate that contamination is also present in the backfill material along the lakefront.

DNAPL was encountered and dissolved phase constituents were also detected in samples collected from wells screened in the upper Copper Falls Aquifer near the former MGP facility. The lateral extent of dissolved phase contamination has been identified to the east, south, and west of the former MGP facility. To the north, in the downgradient direction of groundwater flow, dissolved phase constituents in the Copper Falls Aquifer decrease with distance downgradient from the source area. Elevated levels of dissolved phase contamination have been identified in samples collected from MW-2B(NET), screened below the Miller Creek aquitard at Kreher Park. A deeper piezometer at that location (MW-2A(NET)) yielded lower levels of dissolved phase constituents. This indicates that the plume thins downgradient from the source area in the Copper Falls Aquifer. However, DNAPL encountered in MW-13B and dissolved phase constituents detected in MW-9A indicate that contaminants have migrated vertically in the lower Copper Falls Aquifer beneath the source area.

5.0 RECOMMENDATIONS

In a September 30, 1990, letter to the WDNR, NSP formally requested that the March 1, 1999 report and remedial action plan for the NSP property be reviewed for implementation of an interim response on the Copper Falls Aquifer. This action should be specifically directed toward removal of the DNAPL groundwater contamination source. Given seasonal constraints, Dames & Moore recommends that this interim response be designed for installation during the Spring of 2000.

Prior to system design, FW1 characterization of the extent of DNAPL is needed. Accordingly, we recommend the installation of two additional piezometers to verify the vertical extent of DNAPL. Piezometer MW-9B should be installed adjacent to wells MW-9 and MW-9A, and screened between 105 and 110 feet. Piezometer MW-13C should be installed adjacent to MW-13A and MW-13B, and also screened between 105 and 110 feet. Static water levels should be recorded in these wells a minimum of two weeks after well development.

We also recommend that a complete round of groundwater analyses should be collected from all site wells at the time of piezometer installation. This round will provide additional baseline groundwater quality information prior to the implementation of the remedial action.

Preliminary design concepts for the interim action will be finalized when the data is developed following installation of the new piezometers and receipt of the next round of groundwater quality analyses. Conceptually, if DNAPL is not encountered in either or both of the proposed piezometers, two additional extraction wells should be installed. Extraction wells EW-2 should be installed midway between EW-1 and MW-9/MW-9A at a depth of 90 feet. Extraction well EW-3 should be installed adjacent to MW-9/MW-9A at a depth of 70 feet. Both wells should be constructed with 6-inch diameter stainless steel wire-wound screens 30 feet in length, and black iron pipe well casing.

If DNAPL is encountered at depth in either or both proposed piezometers MW-9B and MW-13-C, Dames & Moore will consider either lengthening the screen, or deepening the screened interval of proposed well EW-2. Depending on the data developed, this conceptual plan may be necessarily modified during design.

TABLES

Table 1
Summary of Monitor Well and Piezometer Construction

Well Number	Type	Elevation PVC (ft. MSL)	Elev. Ground (ft. MSL)	Total Borehole Depth (ft.)	Screened Interval (ft. below surface)	Depth Top of Filter Pack (ft.)	Elev. Top of Filter Pack (ft. MSL)	Depth Bottom of Filter Pack (ft.)	Elev. Bottom of Filter Pack (ft. MSL)	Midpoint Filter Pack Interval
NSP Wells										
FW-1*	Extraction	635.94	636.7	56.0	35-55	30.0	604.7	56.0	850.70	591.7
MW-1	Water Table	634.18	634.7	21.5	11 - 21	9.0	625.7	21.5	611.2	619.45
MW-2	Water Table	634.85	635.1	21.0	10 - 20	8.0	627.1	21.0	614.1	620.6
MW-3*	Water Table	637.83	638.2	16.0	5 - 15	3.0	635.2	16.0	622.2	628.7
MW-4	Water Table	641.03	641.7	15.5	5 - 15	4.0	637.7	15.5	626.2	611.95
MW-4A	Piezometer	641.22	641.6	35.0	21 - 26	19.0	622.6	27.0	614.6	618.6
MW-4B	Piezometer	640.98	641.5	55.5	50 - 55	48.0	593.5	55.5	586	589.75
MW-5	Water Table	633.82	634.3	28.5	18 - 28	16.0	618.3	28.5	605.8	612.05
MW-5A	Piezometer	633.72	634.2	34.0	31.5 - 33.5	30.5	603.7	34.0	600.2	601.95
MW-5B	Piezometer	633.89	634.3	51.0	44 - 49	42.0	592.3	49.0	585.3	588.8
MW-5C	Piezometer	634.33	634.6	76.0	71 - 76	69.0	565.6	76.0	558.6	562.1
MW-6	Water Table	644.88	645.2	18.0	3 - 18	2.5	642.7	18.0	627.2	611.95
MW-6A	Piezometer	644.79	645.2	48.0	42.3 - 47.3	40.8	604.4	47.5	597.7	601.05
MW-7	Water Table	612.60	610.6	15.0	5 - 15	4.5	606.1	15.0	595.6	600.85
MW-7A*	Piezometer	613.25	610.1	35.5	30 - 35	28.0	582.1	35.5	574.6	578.35
MW-8*	Water Table	634.42	635.9	16.0	6 - 16	5.0	630.9	16.0	619.9	625.4
MW-8A*	Piezometer	634.62	635.9	50.0	45 - 50	43.0	592.9	50.0	585.9	589.4
MW-9*	Water Table	637.98	638.3	15.5	5 - 15	4.0	634.3	15.5	622.8	627.8
MW-9A	Piezometer	637.86	638.34	136.5	131 - 136	128.5	509.84	136.0	502.34	506.09
MW-10*	Water Table	638.20	638.46	21.0	5 - 20	4.0	634.46	21.0	617.46	625.96
MW-10A*	Piezometer	638.07	638.31	51.0	45 - 50	44.0	594.31	50.0	588.31	591.31
MW-11*	Water Table	636.13	635.5	15.0	5 - 15	4.0	632.5	15.0	621.5	626.5
MW-12*	Water Table	637.09	637.5	15.0	5 - 15	4.0	633.5	15.0	622.5	627.5
MW-13*	Water Table	635.83	636.3	22.0	9 - 19	7.0	629.3	19.0	617.3	623.3

Table 1
Summary of Monitor Well and Piezometer Construction

Well Number	Type	Elevation PVC (ft. MSL)	Elev. Ground (ft. MSL)	Total Borehole Depth (ft.)	Screened Interval (ft. below surface)	Depth Top of Filter Pack (ft.)	Elev. Top of Filter Pack (ft. MSL)	Depth Bottom of Filter Pack (ft.)	Elev. Bottom of Filter Pack (ft. MSL)	Midpoint Filter Pack Interval
MW-13A	Piezometer	615.94	636.3	50.0	40 - 45	38.0	598.3	46.0	590.3	594.3
W-13B	Piezometer	635.90	636.3	70.0	65 - 70	63.0	573.3	70.0	566.3	569.8
MW-14*	Water Table	639.15	639.7	17.0	5 - 15	4.0	615.7	17.0	622.7	629.7
MW-15*	Water Table	641.21	641.6	17.0	5 - 15	4.0	637.6	15.0	626.6	631.6
MW-16*	Water Table	642.20	642.5	19.0	6 - 16	5.0	637.5	17.0	625.5	631.5
MW-17*	Water Table	633.88	634.4	17.0	5 - 15	4.0	629.4	17.0	617.4	623.9
MW-17A*	Piezometer	633.68	634.4	56.0	50 - 55	48.0	586.4	56.0	578.4	582.4
Kreher Park Monitor Wells										
MW-1(NIET)	Water Table	608.40	605.6	16.0	4 - 14	3.0	602.6	16.0	589.6	596.1
MW-2 (NIET)	Water Table	608.23	605.3	16.0	3.5 - 13.5	2.5	602.8	16.0	589.3	596.05
MW-2A (NIET)	Piezometer	607.99	605.3	52.0	45 - 50	43.0	562.3	50.0	555.3	557.8
MW-2B (NIET)	Piezometer	608.05	605.3	31.0	25-30	22.0	583.3	31.0	574.3	577.8
MW-3 (NIET)	Water Table	612.10	609.5	16.0	5 - 15	4.0	605.5	16.0	593.5	599.5

Notes: * Reference elevations surveyed by Dames & Moore.
Reference elevations for wells EW-1, MW-3, MW-9, MW-10, MW-10A, MW-11, MW-12, MW-14, and MW-15 surveyed in Sept. 1998.
Reference elevations for wells MW-8, MW-8A, MW-16, MW-17, and MW-17A surveyed in August 1999.
Survey information for Kreher Park wells are from February 1995 SEH Report
Wells MW-1, MW-2, MW-2A, MW-2B, and MW-3 installed by NIET in 1989.

Table 2
Summary of Groundwater Elevations

Well Number	Top of Casing Elevation	September 15, 1997		October 6, 1998		November 23, 1998		June 2, 1999		August 23, 1999	
		Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations
NSP Wells											
MW-1*	635.94	16.56	619.38	16.90	619.04	16.75	619.19	16.42	619.52	16.62	619.12
MW-1	634.18	15.08	619.10	15.37	618.81	14.72	619.46	14.99	619.19	14.34	619.84
MW-2	634.85	14.75	620.10	14.98	619.87	14.07	620.78	14.60	620.25	13.71	621.44
MW-3*	637.83	2.85	634.98	2.89	634.94	2.08	635.75	2.70	635.13	2.71	635.12
MW-4	641.03	5.85	635.18	6.54	634.49	5.60	635.43	5.43	635.60	5.07	635.96
MW-4A	641.22	13.81	627.41	14.17	627.05	13.98	627.24	13.67	627.55	13.25	627.97
MW-4B	640.98	16.62	624.36	15.92	625.06	8.90	632.08	16.01	624.97	15.51	625.47
MW-5	633.82	19.66	614.16	20.09	613.73	20.75	613.07	19.76	614.06	19.96	613.86
MW-5A	633.72	19.09	614.63	19.88	613.84	19.85	613.87	19.33	614.39	18.91	614.81
MW-5B	633.89	18.91	614.98	19.83	614.06	19.90	613.99	19.25	614.64	18.86	615.03
MW-5C	634.33	10.08	624.25	9.20	625.13	9.09	625.24	9.43	624.90	10.16	624.17
MW-6	644.88	15.28	629.60	15.86	629.02	14.03	630.75	14.03	630.85	13.10	631.78
MW-6A	644.79	20.02	624.77	19.58	625.21	19.32	625.47	19.43	625.36	20.01	624.78
MW-7	612.60	--	612.60	7.75	604.85	7.89	604.71	7.83	604.77	7.75	604.85
MW-7A*	613.25	--	--	--	--	--	--	--	--	-0.98	614.23
MW-8*	634.42	9.52 ¹	624.90	4.68	629.74	7.01	627.41	5.16	629.26	4.31	630.11
MW-8A*	634.62	15.22	619.40	15.40	619.22	15.06	619.56	15.18	619.44	15.21	619.41
MW-9	637.98	--	--	6.47	631.51	6.32	631.66	5.41	632.57	5.00	632.98
MW-9A	637.86	13.92	623.94	12.88	624.98	12.75	625.11	13.42	624.44	14.19	623.67
MW-10*	638.20	5.28	632.92	5.33	632.87	5.46	632.74	4.81	633.39	4.54	633.66
MW-10A*	638.07	14.50	623.57	14.11	623.96	13.86	624.21	14.00	624.07	15.44	622.63
MW-11	636.13	--	--	9.66	626.47	8.70	627.43	7.83	628.30	8.31	627.82
MW-12	637.09	--	--	--	--	12.35 ¹	624.74	7.05	640.04	6.41	640.68

Table 2
Summary of Groundwater Elevations

Well Number	Top of Casing Elevation	September 15, 1997		October 6, 1998		November 23, 1998		June 2, 1999		August 23, 1999	
		Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations
TW-13*	635.83	11.37	624.46	11.54	624.29	9.79	626.04	11.17	624.66	10.74	625.09
MW-13A	635.94	20.57	615.37	21.33	614.61	21.38	614.56	20.00	615.94	19.72	616.22
MW-13B	635.90	20.43	615.47	20.59	615.31	20.69	615.21	12.45	623.45	11.90	624.00
MW-14*	639.15	--	--	5.02	634.13	4.95	634.20	4.37	634.78	3.87	635.28
MW-15*	641.21	--	--	4.24	636.97	4.03	637.18	4.40	636.81	4.31	636.90
MW-16*	642.20	--	--	--	--	--	--	--	--	4.64	637.56
MW-17*	633.88	--	--	--	--	--	--	--	--	5.91	627.97
MW-17A*	633.68	--	--	--	--	--	--	--	--	20.03 ¹	613.65
Kreher Park Monitor Wells											
MW-1	608.40	7.57	608.40	7.57	600.83	8.02	600.38	7.56	600.84	6.91	601.49
MW-2	608.23	7.37	601.90	7.37	600.86	7.87	600.36	7.41	600.82	6.70	601.53
MW-2A	607.99	-4.26	612.91	-4.26	612.25	-4.31	612.30	-5.32	613.11	-4.60	612.59
MW-21 ¹	608.05	-2.77	610.46	-2.77	610.82	-2.69	610.74	-2.80	610.85	-2.71	610.76
MW-3	612.10	11.41	612.10	11.41	600.69	11.82	600.28	11.42	600.68	10.61	601.49

Notes:

- * Reference elevations surveyed by Dancy & Moore.
- Wells MW-1, MW-3, MW-9, MW-10, MW-11, MW-12, MW-14, and MW-15 surveyed in Sept. 1998.
- Wells MW-8, MW-8A, MW-16, MW-17, and MW-17A surveyed in August 1999.
- Survey information for Kreher Park wells are from February 1995 SEI1 Report.
- Wells MW-1, MW-2, MW-2A, MW-21¹, and MW-3 installed by NIEI in 1989.
- ¹ Water level in well still rising; water.
- ² Depth to free-phase hydrocarbons

Table 3
Summary of Free Phase Hydrocarbon Thicknesses

Well Location	Depth to Bottom	October 6, 1998			November 23, 1998			June 2, 1999			August 23, 1999		
		Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape
EW-1	53.51	41.45	12.06	12.25	40.09	13.42	13.50	35.25	18.26	18.2	34.11	19.20	--
MW-7	17.88	(1)	(1)	10.14	(1)	(1)	10.01	(1)	(1)	9.91	(1)	(1)	10.11
MW-9	14.62	13.78	0.84	2.71	14.20	0.42	3.6	14.01	0.59	--	11.02	1.6	--
TW-13	14.82	(2)	(2)	(2)	(2)	(2)	(2)	18.10	0.31	2.2	(2)	< 6 inches	< 6 inches
MW-13A	45.33	43.22	2.11	4.73	43.36	1.97	3	43.37	1.96	--	(1)	(1)	8.5
MW-13B	69.82	43.56	26.26	26.1	43.56	26.26	27.6	52.28	17.54	--	(1)	(1)	26
MW-15	15.59	14.78	0.81	2.94	13.93	1.66	2.09	13.26	2.33	2.6	(1)	(1)	10.6

- (1) Free phase hydrocarbons not detected by interface probe, free-phase hydrocarbons observed on tape.
(2) Product not measured
Hydrocarbon thickness in well is difference between depth to bottom and depth to hydrocarbon/water interface.
Hydrocarbon thickness on tape measure after probe removed from the well.

Table 4
August 1999 Soil Sample Results
Northern States Power, Ashland, Wisconsin

Analyte	Units	B-35 8-10 ft.	B-36 3-5 ft.	B-37 10-12	RCL ¹ Groundwater Pathway	RCL ² Non-Industrial Landuse	RCL ³ Industrial Landuse
Inorganics							
Arsenic, total as As	mg/kg	<2.1>	<1.2	16	NS	0.039	1.6
Chromium, total as Cr	mg/kg	23	42	13	NS	14	200
Copper, total as Cu	mg/kg	18	19	10	NS	NS	NS
Iron, total as Fe	mg/kg	22,000	31,000	13,000	NS	NS	NS
Lead, total as Pb	mg/kg	<7.2>	<10>	<6.4>	NS	14	500
Nickel, total as Ni	mg/kg	19	24	10	NS	NS	NS
Zinc, total as Zn	mg/kg	43	49	25	NS	NS	NS
Solids	%	61.7	78	90.7	NS	NS	NS
Cyanide, total (distilled) on	mg/kg	<0.045	<0.035	<0.028	NS	NS	NS
VOCs							
Naphthalene	µg/kg	<13	<17>	<13	700	20,000	110,000
Total VOCs:	µg/kg	ND	<17>	ND			
SVOCs							
Total SVOCs:	µg/kg	ND	ND	ND			

NS No standard
 < - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the Residual Contaminant Level (RCL) for the groundwater pathway or the industrial landuse RCL have been shaded.

- 1 Suggested Residual Contaminant Level (RCL) for PAHs based upon protection of groundwater per WDNR interim guidance.
- 2 Suggested Residual Contaminant Level (RCL) for PAHs for Non-Industrial properties based on protection of human health from direct contact related to land use per WDNR interim guidance, or from Table 2 of NR 720.11 Wisconsin Administrative Code.
- 3 Suggested Residual Contaminant Level (RCL) for PAHs for Industrial properties based on protection of human health from direct contact related to land use, or from Table 2 of NR 720.09(4) Wisconsin Administrative Code.

Table 5 (Page 1 of 6)
August 1999 Groundwater Monitoring Results - VOCs and Inorganics
Northern States Power, Ashland, Wisconsin

NSP Wells											
Analyte	Units	MW-1	MW-2	MW-2 Dup	MW-3	MW-4	MW-4 Dup	MW-4A	MW-4B	PAL	ES
Inorganics											
Arsenic, dissolved	µg/L	<5.4>	<4.1>	<7.5>	<7.7>	<1.3>	<4.2>	<4.2>	<4.2>	5	50
Chromium, dissolved	µg/L	<0.42	<0.42	<0.42	<4.2	<0.84>	<1.1>	<0.42	<0.42	10	100
Copper, dissolved	µg/L	<0.47	<0.47	<0.47	<4.7	4.1	1.9	<0.47	14	130	1,300
Iron, dissolved	µg/L	8.3	39,000	39,000	9,700	1,600	290	1,500	35	150	300
Lead, dissolved	µg/L	<1.4	<1.9>	<1.8>	<14	<1.4	<1.4	<1.4	<1.4	1.5	15
Nickel, dissolved	µg/L	<1.1>	<0.95>	<0.66	<7.0>	<0.93>	<1.5>	<0.66	<3.0	20	100
Zinc, dissolved	µg/L	150	140	26	200	190	110	20	180	2,500	5,000
Cyanide, total	µg/L	<3.2	110	120	3,100	56	38	53	<3.2	40	200
VOCs											
Benzene	µg/L	<0.11	<0.11	<0.11	1.7	3,600	3,400	14,000	78	0.5	5
n-Butylbenzene	µg/L	<0.33	<0.33	<0.33	<0.30	<150	<150	<76	<1.5	--	--
sec-Butylbenzene	µg/L	<0.27	<0.27	<0.27	<0.28	<140	<140	<69	<1.4	--	--
Isopropylbenzene	µg/L	<0.17	<0.17	<0.17	<0.38>	<140>	<130	<66	<1.3	--	--
p-Isopropyltoluene	µg/L	<0.27	<0.27	<0.27	<0.27	<130	<130	<66	<1.3	--	--
Ethylbenzene	µg/L	<0.24	<0.24	<0.24	--	--	--	--	--	140	700
Naphthalene	µg/L	<0.23	<0.23	<0.23	14	6,400	4,600	8,600	43	8	40
n-Propylbenzene	µg/L	<0.26	<0.26	<0.26	<0.24>	<100	<100	<52	<1.0	--	--
Toluene	µg/L	<0.16	<0.16	<0.16	0.99	3,200	2,900	9,300	41	68.6	345
1,2,4-Trimethylbenzene	µg/L	<0.25	<0.25	<0.25	1.8	720	440	540	<2.1>	96	480
1,3,5-Trimethylbenzene	µg/L	<0.25	<0.25	<0.25	<0.68>	490	<280>	<170>	<2.2>	--	--
Total Trimethylbenzene	µg/L	<0.25	<0.25	<0.25	2.48	1,210	720	710	<4.3>	--	--
o-Xylene/Styrene	µg/L	<0.24/<0.22	<0.24/<0.22	<0.24/<0.22	1.6	1,400	1,200	1,500	7.3	124	620
m+p-Xylene	µg/L	<0.47	<0.47	<0.47	<0.96>	2,500	2,000	3,100	12	--	--
Xylene, total	µg/L	<0.24	<0.24	<0.24	2.56	3,900	3,200	4,600	19.3	--	--
Total VOCs:	µg/L	ND	ND	ND	26.71	18,450	14,820	37,210	185.6	--	--

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 5 (Page 2 of 6)
August 1999 Groundwater Monitoring Results - VOCs and Inorganics
Northern States Power, Ashland, Wisconsin

NSP Wells											
Analyte	Units	MW-5	MW-5A	MW-5A Dup	MW-5B	MW-5C	MW-6	MW-6A	P.A.L.	ES	
Inorganics											
Arsenic, dissolved	µg/L	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	5	50	
Chromium, dissolved	µg/L	<1.5	<0.42	<0.42	<4.2	<0.42	1.8	1.7	10	100	
Copper, dissolved	µg/L	2.1	<0.76>	<0.67>	<4.7	<1.1>	9.8	5.6	130	1,300	
Iron, dissolved	µg/L	1,000	740	760	100	11	3.0	1.0	150	300	
Lead, dissolved	µg/L	<1.4	<1.4	<1.4	<1.4	<2.9>	<4.0>	<1.7>	1.5	15	
Nickel, dissolved	µg/L	<1.3>	<0.69>	<0.97>	<6.6	<0.66	5.4	3.2	20	100	
Zinc, dissolved	µg/L	160	48	41	130	39	<12	16	2,500	5,000	
Cyanide, total	µg/L	<3.2	23	24	55	<3.2	<3.2	<4>	40	200	
VOCs											
Benzene	µg/L	<78>	14,000	14,000	18,000	1.7	<0.11	<0.11	0.5	5	
n-Butylbenzene	µg/L	<130	<870>	<1,200>	<680	<0.34	<0.33	<0.33	--	--	
sec-Butylbenzene	µg/L	<110	<280	<280	<560	<0.28	<0.27	<0.27	--	--	
Isopropylbenzene	µg/L	<67	<250	<250	<500	<0.25	<0.17	<0.17	--	--	
p-Isopropyltoluene	µg/L	<110	<560	<560	<1,100	<0.56	<0.27	<0.27	--	--	
Ethylbenzene	µg/L	--	--	--	--	--	--	--	140	700	
Naphthalene	µg/L	3,400	3,200	3,100	3,100	0.94	<0.23	<0.23	8	40	
n-Propylbenzene	µg/L	<100	<270	<270	<540	<0.27	<0.26	<0.26	--	--	
Toluene	µg/L	<66	1,800	1,800	5,100	<0.50>	<0.16	<0.16	68.6	343	
1,2,4-Trimethylbenzene	µg/L	<100	<270	<270	<530	<0.27	<0.25	<0.25	96	480	
1,3,5-Trimethylbenzene	µg/L	<100	<270	<270	<540	<0.27	<0.25	<0.25			
Total Trimethylbenzene	µg/L	<100	<270	<270	<540	<0.27	<0.25	<0.25			
o-Xylene/Styrene	µg/L	<97	<470	<470	<950	<0.47	<0.24	<0.24			
m+p-Xylene	µg/L	<190	<670>	<720>	<1,000	<0.50	<0.47	<0.47	124	620	
Xylene, total	µg/L	<97	<670>	<720>	<950	<0.47	<0.24	<0.24			
Total VOCs:	µg/L	3,478	20,540	20,820	26,200	3.14	ND	ND			

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 5 (Page 3 of 6)
August 1999 Groundwater Monitoring Results - VOC's and Inorganics
Northern States Power, Ashland, Wisconsin

NSP Wells													
Analyte	Units	MW-8	MW-8A	MW-9	MW-9A	MW-10	MW-10A	MW-11	PAT.	ES			
Inorganics													
Arsenic, dissolved	µg/L	<4.2	<4.2	<4.2	<4.2	<4.2	<5.2>	<4.2	5	50			
Chromium, dissolved	µg/L	<0.42	<0.71>	<0.84>	<0.42	<0.42	<0.42	<0.42	10	100			
Copper, dissolved	µg/L	3.0	2.9	<0.47	<0.52>	2.9	<0.85>	2.0	130	1,300			
Iron, dissolved	µg/L	3.9	300	3,000	170	6.1	7.5	7.1	150	300			
Lead, dissolved	µg/L	<3.8>	<1.4	<2.3>	<2.6>	<1.4	<2.3>	<1.4	1.5	15			
Nickel, dissolved	µg/L	2.7	<2.1>	<2.0>	<0.66	<1.6>	<2.2>	<1.0>	20	100			
Zinc, dissolved	µg/L	<12	19	<12	<12	<12	19	<12	2,500	5,000			
Cyanide, total	µg/L	.7	.32	690	360	.32	.32	.17	40	200			
VOCs													
Benzene	µg/L	3.7	16,000	65,000	27,000	<0.11	<0.24	<0.24	0.5	5			
n-Butylbenzene	µg/L	<0.34	<680	<660	<660	<0.33	<0.34	<0.34	--	--			
sec-Butylbenzene	µg/L	<0.28	<560	<540	<540	<0.27	<0.28	<0.28	--	--			
Isopropylbenzene	µg/L	<0.25	<500	<330	<330	<0.17	<0.25	<0.25	--	--			
p-Isopropyltoluene	µg/L	<0.56	<1,100	<550	<550	<0.27	<0.56	<0.56	--	--			
Ethylbenzene	µg/L	--	--	3,100	1,700	--	--	--	140	700			
Naphthalene	µg/L	<0.25	<500	12,000	5,400	<0.67>	<0.25	<0.25	8	40			
n-Propylbenzene	µg/L	<0.27	<540	<520	<520	<0.26	<0.27	<0.27	--	--			
Toluene	µg/L	<0.24	<570>	13,000	9,600	<0.16	<0.24	<0.24	68.6	343			
1,2,4-Trimethylbenzene	µg/L	<0.27	<530	<510>	<510	<0.25	<0.27	<0.27					
1,3,5-Trimethylbenzene	µg/L	<0.27	.540	<500	.500	.0.25	.0.27	.0.27	96	480			
Total Trimethylbenzene	µg/L	.0.27	.530	<510>	<500	.0.25	.0.27	.0.27					
o-Xylene/Styrene	µg/L	<0.47	<950	<1,400>/<910>	<880>/<460>	<0.24	<0.47	<0.47					
m+p-Xylene	µg/L	<0.50	<1,000	<2,900>	<2,000>	<0.47	<0.50	<0.50	124	620			
Xylene, total	µg/L	<0.47	<950	<4,300>	<2,880>	<0.24	<0.47	<0.47					
Total VOCs:	µg/L	3.7	16,570	98,820	47,040	<0.67>	NID	NID					

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 5 (Page 4 of 6)
August 1999 Groundwater Monitoring Results - VOCs and Inorganics
Northern States Power, Ashland, Wisconsin

NSP Wells									
Analyte	Units	MW-12	TW-13	MW-14	MW-16	MW-17	MW-17A	PAL	ES
Inorganics									
Arsenic, dissolved	µg/L	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	5	50
Chromium, dissolved	µg/L	<0.42	<0.42	<0.45	<1.4	<5.6	<8.5	10	100
Copper, dissolved	µg/L	7.6	<0.47	<0.47	12	<1.3	<0.47	130	1,300
Iron, dissolved	µg/L	43	440	22,000	200	120	190	150	300
Lead, dissolved	µg/L	<1.6	<1.4	<1.4	<2.5	<2.0	<2.8	1.5	15
Nickel, dissolved	µg/L	3.0	<2.3	<0.66	5.7	<0.97	<1.2	20	100
Zinc, dissolved	µg/L	28	<12	110	170	150	<12	2,500	5,000
Cyanide, total	µg/L	33	110	160	<3.2	<3.2	<3.2	40	200
VOCs									
Benzene	µg/L	120	5,600	11,000	0.50	<0.25	<0.14	0.5	5
n-Butylbenzene	µg/L	<7.6	<330	<76	<0.33	<0.33	<0.33	--	--
sec-Butylbenzene	µg/L	<6.9	<270	<69	<0.27	<0.27	<0.27	--	--
Isopropylbenzene	µg/L	<6.6	<170	<87	<0.17	<0.17	<0.17	--	--
p-Isopropylbenzene	µg/L	<6.7	<270	<67	<0.27	<0.27	<0.27	--	--
Ethylbenzene	µg/L	--	2,300	--	<0.24	<0.24	<0.24	140	700
Naphthalene	µg/L	570	9,100	9,000	<0.67	<0.35	<0.23	8	40
n-Propylbenzene	µg/L	<5.2	<260	<52	<0.26	<0.26	<0.26	--	--
Toluene	µg/L	<9.4	4,200	7,300	<0.25	<0.26	<0.16	68.6	343
1,2,4-Trimethylbenzene	µg/L	<18	<400	390	<0.25	<0.25	<0.25	96	480
1,3,5-Trimethylbenzene	µg/L	<9.8	<250	<130	<0.25	<0.25	<0.25	--	--
Total Trimethylbenzene	µg/L	<27.8	<400	520	<0.25	<0.25	<0.25	--	--
o-Xylene/Styrene	µg/L	<25	<720/<220	1,000	<0.24/<0.22	<0.24/<0.22	<0.24/<0.22	124	620
m,p-Xylene	µg/L	34	<1,600	1,800	<0.47	<0.47	<0.47	--	--
Xylene, total	µg/L	59	<2,320	2,800	<0.24	<0.24	<0.24	--	--
Total VOCs:	µg/L	786.2	23,920	30,707	1.42	<0.86	<0.37	--	--

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 5 (Page 5 of 6)
August 1999 Groundwater Monitoring Results - VOCs and Inorganics
Northern States Power, Ashland, Wisconsin

Kreher Park Wells										
Analyte	Units	MW-1 (NET)	MW-2 (NET)	MW-2 (NET) Dup	MW-2A (NET)	MW-2B (NET)	MW-3 (NET)	PAL	ES	
Inorganics										
Arsenic, dissolved	µg/L	<4.2	<4.2	<4.2	<4.2	<4.2	<4.3	5	50	
Chromium, dissolved	µg/L	<0.42	2.1	2.4	<0.44	<0.42	<0.61	10	100	
Copper, dissolved	µg/L	<1.3>	2.0	2.6	<0.52>	<0.47	16	130	1,300	
Iron, dissolved	µg/L	1,300	3,500	3,500	53	190	190	150	300	
Lead, dissolved	µg/L	<1.4	<2.5>	<3.8>	<1.4	<1.4	<1.6>	1.5	15	
Nickel, dissolved	µg/L	<1.3>	4.0	3.5	<0.80>	<1.0>	8.6	20	100	
Zinc, dissolved	µg/L	27	13	42	<12	<12	23	2,500	5,000	
Cyanide, total	µg/L	<4>	12	12	<3.2	20	<3.2	40	200	
VOCs										
Benzene	µg/L	1,700	370	380	17	19,000	<0.60	0.5	5	
n-Butylbenzene	µg/L	<42	<8.7>	<16>	3.5	2,600	3.3	--	--	
sec-Butylbenzene	µg/L	<35	<7.0	<7.0	<0.70	<370>	<1.4>	--	--	
Isopropylbenzene	µg/L	<32	<6.3	<6.3	<0.63	<320	<0.63	--	--	
p-Isopropyltoluene	µg/L	<70	<14	<14	<1.4	<700	<1.4	--	--	
Ethylbenzene	µg/L	--	--	--	--	--	--	140	700	
Naphthalene	µg/L	1,800	360	480	8.9	9,000	7.4	8	40	
n-Propylbenzene	µg/L	<34	<6.7	<6.7	<0.67	<340	<0.67	--	--	
Toluene	µg/L	<65>	22	22	13	9,700	<0.60	68.6	341	
1,2,4-Trimethylbenzene	µg/L	<97>	<21>	<22>	<0.67	<330	<0.67	96	480	
1,3,5-Trimethylbenzene	µg/L	<34	<6.8	<6.8	<0.68	<340	<0.68			
Total Trimethylbenzene	µg/L	<97>	<21>	<22>	<0.67	<340	<0.67			
o-Xylene/Styrene	µg/L	<130>	53	55	<1.7>	<900>	<1.2			
m+p-Xylene	µg/L	230	60	62	<2.2>	<1,700>	<1.2	124	620	
Xylene, total	µg/L	360	113	117	<2.2>	<2,600>	<1.2			
Total VOCs:	µg/L	4,022	894.7	1,037	46.3	43,270	12.1			

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 5 (Page 6 of 6)
August 1999 Groundwater Monitoring Results - VOCs and Inorganics
Northern States Power, Ashland, Wisconsin

Analyte	Units	Kreher Park Wells				PAT.	ES
		MW-7A	TW-11	TW-11 Dup	TW-12		
Inorganics							
Arsenic, dissolved	µg/L	<4.2	<4.2	<4.2	<4.2	5	50
Chromium, dissolved	µg/L	<4.2	<0.84>	<0.42	<0.42	10	100
Copper, dissolved	µg/L	<4.7	<0.47	<0.47	<0.47	130	1,300
Iron, dissolved	µg/L	110	14,000	14,000	13,000	150	300
Lead, dissolved	µg/L	<14	<2.7>	<2.1>	<2.1>	1.5	15
Nickel, dissolved	µg/L	<6.6	<0.87>	<0.96>	<0.66	20	100
Zinc, dissolved	µg/L	<120	150	21	26	2,500	5,000
Cyanide, total	µg/L	<3.2	<3.2	<3.2	<3.2	40	200
VOCs							
Benzene	µg/L	2,900	<60	<60	160	0.5	5
n-Butylbenzene	µg/L	<76	<85	<85	<4.2	--	--
sec-Butylbenzene	µg/L	<69	<70	<70	<3.5	--	--
Isopropylbenzene	µg/L	<66	<63	<63	<3.2	--	--
p-Isopropyltoluene	µg/L	<67	<140	<140	<7.0	--	--
Ethylbenzene	µg/L	--	--	--	--	140	700
Naphthalene	µg/L	4,500	4,600	3,900	210	8	40
n-Propylbenzene	µg/L	<52	<67	<67	<3.4	--	--
Toluene	µg/L	4,600	<60	<60	<3.0	--	--
1,2,4-Trimethylbenzene	µg/L	360	<190>	<200>	16	96	480
1,3,5-Trimethylbenzene	µg/L	<120>	<68	<68	<3.4	--	--
Total Trimethylbenzene	µg/L	480	<190>	<200>	16	--	--
o-Xylene/Styrene	µg/L	780	<120	<120	<9.7>	124	620
m+p-Xylene	µg/L	1,700	<160>	<140>	<7.9>	--	--
Xylene, total	µg/L	2,480	<160>	<140>	<17.6>	--	--
Total VOCs:	µg/L	14,960	4,950	4,240	403.6	--	--

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 6 (Page 1 of 6)
August 1999 Groundwater Results - SVOCs
Northern States Power, Ashland, Wisconsin

NSP Wells											
Analyte	Units	MW-1	MW-2	MW-2 Dup	MW-3	MW-4	MW-4 Dup	MW-4A	MW-4B	PAT.	ES
Acenaphthene	µg/L	<1.4	<1.3	<1.3	24	<200>	<200>	<130	<1.3	--	--
Acenaphthylene	µg/L	<1.4	<1.4	<1.4	<3.5>	<140	<140	<230>	6.4	--	--
Anthracene	µg/L	<1.2	<1.2	<1.2	7.0	<120	<120	<120	<1.2	600	3,000
Benzo(a)anthracene	µg/L	<0.79	<0.76	<0.76	3.1	<76	<78	<76	<7.6	--	--
Benzo(a)pyrene	µg/L	<1.3	<1.2	<1.2	<1.2	<120	<120	<120	<1.2	0.02	0.2
Benzo(b)fluoranthene	µg/L	<0.67	<1.7>	<1.4>	<0.64	<64	<66	<64	<0.64	0.02	0.2
Benzo(k)fluoranthene	µg/L	<1.4	<1.3	<1.3	<1.3	<130	<140	<130	<1.3	--	--
Benzo(ghi)perylene	µg/L	<1.2	<1.2	<1.2	<1.2	<120	<120	<120	<1.2	--	--
Butyl Benzyl Phthalate	µg/L	<1.1	<1.1	<1.1	<1.1	<110	<110	<110	<1.1	--	--
Chrysene	µg/L	<0.71	<0.68	<0.68	<0.68	<68	<70	<68	<0.68	0.02	0.2
Dibenzo (a,h) Anthracene	µg/L	<0.72	<0.69	<0.69	<0.69	<69	<71	<69	<0.69	--	--
2,4-Dimethylphenol	µg/L	<3.2	<3.1	<3.1	<3.1	<310	<320	<580>	<3.1	--	--
Di-n-Butylphthalate	µg/L	<1.7	<1.6	<1.6	<1.6	<160	<170	<160	<1.6	20	100
Fluoranthene	µg/L	<0.70	<0.67	<0.67	5.0	<67	<69	<67	<0.67	80	400
Fluorene	µg/L	<1.1	<1.1	<1.1	5.9	<110	<110	<110	<1.1	80	400
Indeno (1,2,3-cd) Pyrene	µg/L	<0.72	<0.69	<0.69	<0.69	<69	<71	<69	<0.69	--	--
2-Methylnaphthalene	µg/L	<1.5	<1.4	<1.4	<1.4	620	550	1,200	8.2	--	--
2-Methylphenol	µg/L	<1.4	<1.3	<1.3	<1.3	<130	<130	<280>	<1.3	--	--
3 & 4-Methylphenol	µg/L	<1.6	<1.5	<1.5	<1.5	<150	<150	770	<1.5	--	--
Naphthalene	µg/L	<1.6	<1.5	<1.5	14	4,500	3,900	14,000	37	8	40
Phenol	µg/L	<0.79	<0.76	<0.76	<0.76	<76	<78	700	<0.76	1,200	6,000
Phenanthrene	µg/L	<0.68	<0.65	<0.65	22	<65	420	<65	0.65	--	--
Pyrene	µg/L	<1.3	<1.3	<1.3	<3.9>	<130	<130	<130	<1.3	50	250
Total SVOCs:	µg/L	NID	<1.7>	<1.4>	88.4	5,320	5,070	17,760	51.6		

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 6 (Page 2 of 6)
August 1999 Groundwater Results - SVOCs
Northern States Power, Ashland, Wisconsin

Analyte	Units	NSP Wells										P.M.	ES
		MTW-5	MTW-5A	MTW-5A Dup	MTW-5B	MTW-5C	MTW-6	MTW-6A					
Acenaphthene	µg/L	230	22	22	<14	<1.7	<1.3	<1.3	--	--	--	--	--
Acenaphthylene	µg/L	<14	15	16	<14	<1.7	<1.4	<1.4	--	--	--	--	--
Anthracene	µg/L	31	1.8	1.8	12	1.5	1.2	1.2	600	3,000	--	--	--
Benzo(a)anthracene	µg/L	<7.9	<0.77	<0.78	<7.8	<0.97	<0.76	<0.76	--	--	--	--	--
Benzo(a)pyrene	µg/L	<13	<1.2	<1.2	<12	<1.5	<1.2	<1.2	0.02	0.2	--	--	--
Benzo(b)fluoranthene	µg/L	<6.7	<0.65	<0.65	<6.5	<0.81	<0.64	<0.82	0.02	0.2	--	--	--
Benzo(k)fluoranthene	µg/L	<14	<4.4	<1.3	<13	<1.7	<1.3	<1.3	--	--	--	--	--
Benzo(g,h,i)perylene	µg/L	<12	<1.2	<1.2	<12	<1.5	<1.2	<1.2	--	--	--	--	--
Butyl Benzyl Phthalate	µg/L	<11	<1.1	<1.1	<11	<1.3	<1.1	<1.1	--	--	--	--	--
Chrysene	µg/L	<7.1	<0.69	<0.69	<6.9	<0.86	<0.68	<0.68	0.02	0.2	--	--	--
Dibenzo (a,h) Anthracene	µg/L	<23	<0.70	<0.70	<7.0	<0.88	<0.69	<0.69	--	--	--	--	--
2,4-Dimethylphenol	µg/L	<32	600	550	2,900	<3.9	<3.1	<3.1	--	--	--	--	--
Di-n-Butylphthalate	µg/L	<17	<1.7	<1.7	<17	<2.1	<1.6	<1.9	20	100	--	--	--
Fluoranthene	µg/L	39	1.5	1.6	6.8	0.85	0.67	1.2	80	400	--	--	--
Fluorene	µg/L	<11	<1.1	<1.1	<11	<1.4	1.1	1.1	80	400	--	--	--
Indeno (1,2,3-cd) Pyrene	µg/L	<7.2	<0.70	<0.70	<7.0	<0.88	<0.69	<0.69	--	--	--	--	--
2-Methylnaphthalene	µg/L	250	200	170	<15	1.8	1.4	1.1	--	--	--	--	--
2-Methylphenol	µg/L	<14	180	210	3,100	<1.7	<1.3	<1.3	--	--	--	--	--
3 & 4-Methylphenol	µg/L	<16	120	140	3,900	<1.9	<1.5	<1.5	--	--	--	--	--
Naphthalene	µg/L	1,900	1,900	1,700	390	<2.0	<1.5	<1.5	8	40	--	--	--
Phenol	µg/L	<7.9	<0.77	8.3	2,000	<0.97	<0.76	<0.76	1,200	6,000	--	--	--
Phenanthrene	µg/L	120	7.2	7.2	<6.6	0.83	0.65	0.65	--	--	--	--	--
Pyrene	µg/L	<31	<1.3	<1.3	<13	<1.6	<1.3	<1.3	50	250	--	--	--
Total SVOCs:	µg/L	2,601	3,047.5	2,826.9	12,290	ND	ND	<5.77					

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
Concentrations exceeding the ES have been shaded.

Table 6 (Page 3 of 6)
August 1999 Groundwater Results - SVOCs
Northern States Power, Ashland, Wisconsin

Analyte	Units	NSP Wells										P.M.	ES
		MTV-8	MTV-8A	MTV-9	MTV-9A	MTV-10	MTV-10A	MTV-11					
Acenaphthene	µg/L	<1.7	<1.6	1,800	<140	<1.3	<1.3	<1.3				--	--
Acenaphthylene	µg/L	<1.7	<1.6	2,300	<140	<1.4	<1.4	<1.4				--	--
Anthracene	µg/L	<1.5	<1.4	1,800	<120	<1.2	<1.2	<1.2				600	3,000
Benzo(a)anthracene	µg/L	<0.97	<0.88	1,100	<78	<0.76	<0.76	<0.76				--	--
Benzo(a)pyrene	µg/L	<1.5	<1.4	1,200	<120	<1.2	<1.2	<1.2				0.02	0.2
Benzo(b)fluoranthene	µg/L	<0.81	<0.74	2,300	<65	<0.64	<0.64	<0.64				0.02	0.2
Benzo(k)fluoranthene	µg/L	<1.7	<1.5	2,300	<130	<1.3	<1.3	<1.3				--	--
Benzo(g,h,i)perylene	µg/L	<1.5	<1.4	2,200	<120	<1.2	<1.2	<1.2				--	--
Butyl Benzyl Phthalate	µg/L	<1.3	<1.2	<220	<110	<1.1	<1.1	<1.1				--	--
Chrysene	µg/L	<0.86	<0.79	1,100	<69	<0.68	<0.68	<0.68				0.02	0.2
Dibenzo (a,j) Anthracene	µg/L	<0.88	<0.80	<140	<70	<0.69	<0.69	<0.69				--	--
2,4-Dimethylphenol	µg/L	<3.9	210	<630	<310	<3.1	<3.1	<3.1				--	--
Di-n-Butylphthalate	µg/L	<2.1	<1.9	<330	<170	<1.6	<1.6	<1.6				20	100
Fluoranthene	µg/L	<0.85	<0.78	1,900	<68	<0.99	<0.99	<0.99				80	400
Fluorene	µg/L	<1.4	<1.3	<220	<110	<1.1	<1.1	<1.1				80	400
Indeno (1,2,3-cd) Pyrene	µg/L	<0.88	<0.80	<140	<70	<0.69	<0.69	<0.69				--	--
2-Methylnaphthalene	µg/L	<1.8	<1.7	20,000	<370	<1.4	<1.4	<1.4				--	--
2-Methylphenol	µg/L	<1.7	210	<270	<130	<1.3	<1.3	<1.3				--	--
3 & 4-Methylphenol	µg/L	<1.9	210	<310	<150	<1.5	<1.5	<1.5				--	--
Naphthalene	µg/L	<2.0	110	53,000	4,100	<1.5	<1.5	<1.5				8	40
Phenol	µg/L	<0.97	120	<160	<78	<0.76	<0.76	<0.76				1,200	6,000
Phenanthrene	µg/L	<0.83	<0.75	7,000	<68	<0.65	<0.65	<0.65				--	--
Pyrene	µg/L	<1.6	<1.5	2,700	<130	<1.3	<1.3	<1.3				50	250
Total SVOCs:	µg/L	ND	860	100,700	4,470	<0.99	ND	ND					

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 6 (Page 4 of 6)
August 1999 Groundwater Results - SVOCs
Northern States Power, Ashland, Wisconsin

NSP Wells									
Analyte	Units	MTW-12	TW-13	MTW-14	MTW-16	MTW-17	MTW-17A	PAL	ES
Acenaphthene	µg/L	<21	<650>	1,500	<1.4	<1.3	<1.4	--	--
Acenaphthylene	µg/L	<21	<280	1,600	<1.4	<1.4	<1.4	--	--
Anthracene	µg/L	<18	950	1,700	<1.2	<1.2	<1.2	600	3,000
Benzofluoranthene	µg/L	<12	680	1,700	<0.78	<0.76	<0.78	--	--
Benzofluoranthene	µg/L	19	250	300	1.2	1.2	1.2	0.02	0.2
Benzofluoranthene	µg/L	<9.8	<130	<160	<0.66	<0.64	<0.65	0.02	0.2
Benzofluoranthene	µg/L	<20	<270	<320	<1.4	<1.3	<1.3	--	--
Benzofluoranthene	µg/L	<18	<240	<290	<1.2	<1.2	<1.2	--	--
Butyl Benzyl Phthalate	µg/L	<16	<220	<260	<1.1	<1.1	<1.1	--	--
Chrysene	µg/L	<10	800	<170	<0.70	<0.68	<0.69	0.02	0.2
Dibenzo (a,h) Anthracene	µg/L	<11	<140	<170	<0.71	<0.69	<0.70	--	--
2,4-Dimethylphenol	µg/L	<47	<630	<1,800>	<3.2	<3.1	<3.1	--	--
Di-n-Butylphthalate	µg/L	<25	<330	<400	<1.7	<1.6	<1.7	20	100
Fluoranthene	µg/L	<10	750	1,200	<0.69	<0.67	<0.68	80	400
Fluorene	µg/L	<17	<220	1,100	<1.1	<1.1	<1.1	80	400
Indeno (1,2,3-cd) Pyrene	µg/L	<11	<140	<170	<0.71	<0.69	<0.70	--	--
2-Methylnaphthalene	µg/L	83	1,900	2,700	<1.5	<1.4	<1.5	--	--
2-Methylphenol	µg/L	<20	<270	1,400	<1.3	<1.3	<1.3	--	--
3 & 4-Methylphenol	µg/L	<23	<310	2,400	<1.5	<1.5	<1.5	--	--
Naphthalene	µg/L	230	14,000	9,100	<1.6	<1.5	<1.6	8	40
Phenol	µg/L	<12	<160	<190	<0.78	<0.76	<0.78	1,200	6,000
Phenanthrene	µg/L	66	1,300	1,400	<0.67	<0.65	<0.66	--	--
Pyrene	µg/L	<20	<460>	1,200	<1.3	<1.3	<1.3	50	250
Total SVOCs:		379	21,490	28,800	ND	ND	ND		

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 6 (Page 5 of 6)
August 1999 Groundwater Results - SVOCs
Northern States Power, Ashland, Wisconsin

Kreher Park Wells									
Analyte	Units	MW-1(NE1)	MW-2(NE1)	MW-2(NE1) Dup	MW-2A(NE1)	MW-2B(NE1)	MW-3(NE1)	PAL	ES
Acenaphthene	µg/L	<500>	66	64	<1.4	<140	140	--	--
Acenaphthylene	µg/L	<280	63	61	<1.4	<140	130	--	--
Anthracene	µg/L	<240	<12	<12	<1.2	<120	170	600	3,000
Benzof(a)anthracene	µg/L	<160	73	71	<0.78	<78	<15	--	--
Benzof(a)pyrene	µg/L	<250	88	84	<1.2	<120	200	0.02	0.2
Benzof(b)fluoranthene	µg/L	<130	92	89	<0.66	<66	190	0.02	0.2
Benzof(k)fluoranthene	µg/L	<270	78	75	<1.4	<140	170	--	--
Benzof(g,h,i)perylene	µg/L	<240	75	71	<1.2	<120	150	--	--
Butyl Benzyl Phthalate	µg/L	<220	<11	<11	<1.1	<110	<21	--	--
Chrysene	µg/L	<140	78	<6.8	<0.70	<70	240	0.02	0.2
Dibenzo (a,h) Anthracene	µg/L	<140	<7.0	<6.9	<0.71	<71	<14	--	--
2,4-Dimethylphenol	µg/L	<630	<3.1	<3.1	<3.2	<760>	<62	--	--
Di-n-Butylphthalate	µg/L	<330	.17	.16	.17	.170	.20	20	100
Fluoranthene	µg/L	<140	51	<6.7	<0.69	<69	240	80	400
Fluorene	µg/L	<220	<11	<11	<1.1	<110	93	80	400
Indeno (1,2,3-cd) Pyrene	µg/L	<140	<7.0	<6.9	<0.71	<71	<14	--	--
2-Methyl naphthalene	µg/L	<530>	69	67	<1.5	<300>	<29	--	--
2-Methylphenol	µg/L	<270	<13	<13	<1.3	<400>	<26	--	--
3 & 4-Methylphenol	µg/L	.310	.15	.15	.15	740	.30	--	--
Naphthalene	µg/L	1,200	310	310	<1.6	3,500	140	8	40
Phenol	µg/L	<160	<7.8	<7.6	<0.78	<78	<20	1,200	6,000
Phenanthrene	µg/L	900	55	<6.5	<0.67	<67	150	--	--
Pyrene	µg/L	<260	<13	52	<1.3	<130	470	50	250
Total SVOCs:	µg/L	3,130	1,098	567	ND	5,700	2,483		

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
Concentrations exceeding the ES have been shaded.

Table 6 (Page 6 of 6)
August 1999 Groundwater Results - SVOCs
Northern States Power, Ashland, Wisconsin

Analyte	Units	Kreher Park Wells				PAL	ES
		MW-7A	TW-11	TW-11 Dup	TW-12		
Acenaphthene	µg/L	<130	540	2,200	15	--	--
Acenaphthylene	µg/L	<210>	140	220	<1.4	--	--
Anthracene	µg/L	<120	240	710	<1.2	600	3,000
Benzo(a)anthracene	µg/L	<76	<15	<15	<0.78	--	--
Benzo(a)pyrene	µg/L	<120	180	240	<1.2	0.02	0.2
Benzo(b)fluoranthene	µg/L	<64	<180	210	<0.66	0.02	0.2
Benzo(k)fluoranthene	µg/L	<130	160	200	<1.4	--	--
Benzo(e,h,i)perylene	µg/L	<120	<23	150	<1.2	--	--
Butyl Benzyl Phthalate	µg/L	<110	<20	<21	<21	--	--
Chrysene	µg/L	<68	180	300	<0.70	0.02	0.2
Dibenz(a,h) Anthracene	µg/L	<69	<20	<14	<0.71	--	--
2,4-Dimethylphenol	µg/L	<310	<62	<62	<3.2	--	--
Di-n-Butylphthalate	µg/L	<160	<20	<33	<1.7	20	100
Fluoranthene	µg/L	<67	200	600	<0.69	80	400
Fluorene	µg/L	<110	190	770	<1.1	80	400
Indeno (1,2,3-cd) Pyrene	µg/L	<69	<20	<14	<0.71	--	--
2-Methylnaphthalene	µg/L	720	1,500	3,900	<1.5	--	--
2-Methylphenol	µg/L	<130	<26	<26	<1.3	--	--
4-Methylphenol	µg/L	<150	<20	<30	<1.5	--	--
Naphthalene	µg/L	5,500	480	2,200	120	8	40
Phenol	µg/L	<76	<20	<15	3.6	1,200	6,000
Phenanthrene	µg/L	<65	480	2,200	<0.67	--	--
Pyrene	µg/L	<130	250	780	<1.3	50	250
Total SVOCs:	µg/L	6,430	7,240	15,180	138.6		

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
Concentrations exceeding the ES have been shaded.

FIGURES





● MW-1 (NET)

0 60' 120'
SCALE: 1" = 60'

● AW-1
(ARTESIAN WELL)

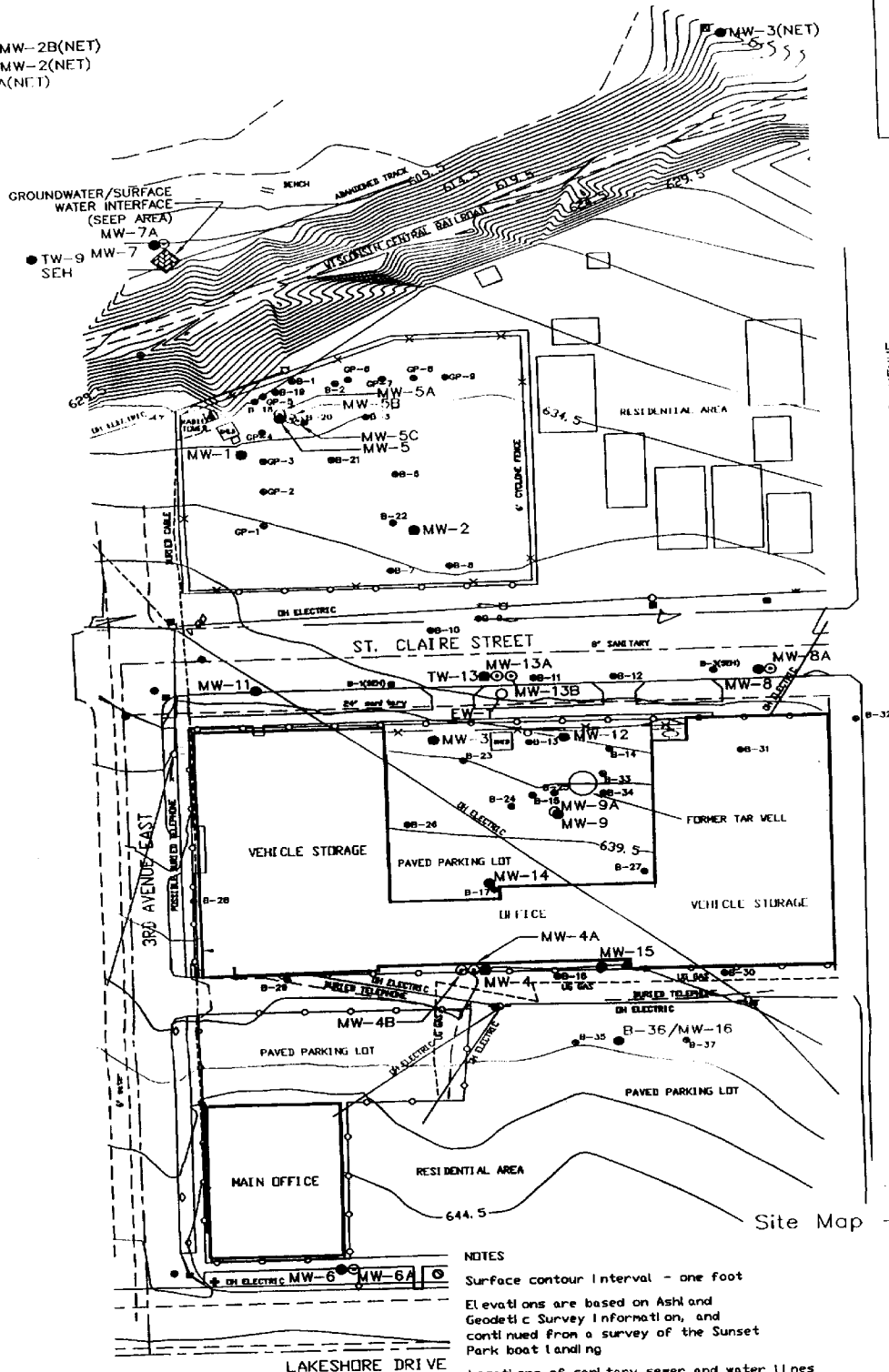
LEGEND:

- ✦ Fire hydrant
- ◇ Traffic control sign
- Manhole
- Gate valve
- Catch basin
- Existing boring/geoprobe
- Existing monitoring well
- Extraction Well
- Existing piezometer
- Telephone pedestal
- Power pole
- || Power/light pole
- x Guy anchor
- ▲ Gas meter
- ⊕ PCB Sample Location

● MW-2B(NET)
● MW-2(NET)
● MW-2A(NET)

GROUNDWATER/SURFACE
WATER INTERFACE
(SEEP AREA)
MW-7A

● TW-9 MW-7
SEH



PRENTICE AVENUE

○ MW-17A
● MW-17

NOTES

Surface contour interval - one foot
Elevations are based on Ashland
Geodetic Survey Information, and
continued from a survey of the Sunset
Park boat landing
Locations of sanitary sewer and water lines
are approximate from City of Ashland maps

Figure 2
Site Map - Existing Conditions

Northern States Power
Ashland, Wisconsin

Project No.: 05644-093



DAMES & MOORE
A DCD COMPANY

APPENDICES

APPENDIX A

**SOIL BORING LOGS, WELL CONSTRUCTION,
WELL DEVELOPMENT, AND BOREHOLE ABANDONMENT FORMS
FOR B-35, B-36/MW-16, B-37, MW-17, AND MW-17A**

SOIL BORING LOG INFORMATION

Form 4400-122

7-91

Route To:

- ☐ Solid Waste
☐ Wastewater
☐ Emergency Response

- ☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other _____

Page 1 of 2

Facility / Project Name Northern States Power		License/Permit/Monitoring Number _____		Boring Number B-35	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear - Ryan Fischer		Date Drilling Started 08 / 24 / 99 MM DD YY		Date Drilling Completed 08 / 24 / 99 MM DD YY	
				Drilling Method 2 1/4" ID HSA	
DNR Facility Well No. _____	WI Unique Well No. _____	Common Well Name _____		Final Static Water Level _____ Feet MSL	Surface Elevation _____ Feet MSL
				Borehole Diameter 8.3 inches	
Boring Location State Plane SW 1/4 of NW 1/4 of Section 33 - 48 N. R. 4 E		Lat _____ Long _____		Local Grid Location (if Applicable) <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
County Ashland		DNR County Code 0 2		Civil Town / City / or Village City of Ashland	

Sample Number	Sample		Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					ROD/Comments
	Length Recovered (N)	Blow Counts (N)							Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	
1	14	12 2.4	1	Topsoil- dark brown clayey loam with little sand	CL				4					
2	14	5.4 5.2	2	CLAY, some silt, trace sand, trace gravel, moist, stiff, low plasticity, reddish brown	CL				9					
3	22	4.3 4.5	3						7					
4	19	7.8 8.10	4	Very stiff below 6 feet					16					
5	20	10.9 10.12	5						19					
6	24	5.7 7.8	6	CLAY, some silt, little sand, little gravel, stiff, low plasticity, slightly moist, reddish brown	CL				14					
7	22	15.20 21.23	7	As above - dry to slightly moist	CL				41					

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *Mark A. McElhenny*

Firm **Dames & Moore, Madison, WI**

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$4,000 for each violation. Fines not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION		(2) FACILITY NAME	
Well/Drillhole/Borehole Location <u>B-35</u>	County <u>Ashland</u>	Original Well Owner (if known) XXXX <u>Northern State Power</u>	
SW 1/4 of NW 1/4 of Sec. <u>33</u> : T. <u>48</u> N. R. <u>4</u> <input checked="" type="checkbox"/> E <input type="checkbox"/> W (if applicable)		Present Well Owner <u>Northern States Power</u>	
Gov't Lot _____ Grid Number _____		Street or Route <u>301 Lake Shore Drive East</u>	
Grid Location _____ ft. <input type="checkbox"/> N. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> W.		City, State, Zip Code <u>Ashland, WI 54806</u>	
Civil Town Name <u>Ashland</u>		Facility Well No. and/or Name (if Applicable) WI Unique Well No. <u>Northern States Power</u> _____	
Street Address of Well <u>301 Lake Shore Drive East</u>		Reason For Abandonment <u>Soil Boring</u>	
City, Village <u>Ashland, WI</u>		Date of Abandonment <u>8-24-99</u>	

WELL/DRILLHOLE/BOREHOLE INFORMATION	
(3) Original Well/Drillhole/Borehole Construction Completed On Date) <u>8-24-99</u>	
<input type="checkbox"/> Monitoring Well <input type="checkbox"/> Water Well <input type="checkbox"/> Drillhole <input checked="" type="checkbox"/> Borehole	Construction Report Available? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Construction Type: <input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (Specify) _____	
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock	
Total Well Depth (ft.) <u>18</u> Casing Diameter (ins.) <u> </u> (From ground surface)	
Casing Depth (ft.) <u> </u>	
Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown If Yes, To What Depth? <u>NA</u> Feet	
(4) Depth to Water (Feet) _____ Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If No, Explain <u>not used</u> Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No	
(5) Required Method of Placing Sealing Material <input checked="" type="checkbox"/> Conductor Pipe-Gravity <input type="checkbox"/> Conductor Pipe-Pumped <input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain) _____	
(6) Sealing Materials For monitoring wells and monitoring well boreholes only <input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Sand-Cement (Concrete) Grout <input type="checkbox"/> Concrete <input type="checkbox"/> Bentonite Pellets <input type="checkbox"/> Clay-Sand Slurry <input checked="" type="checkbox"/> Granular Bentonite <input type="checkbox"/> Bentonite-Sand Slurry <input type="checkbox"/> Bentonite - Cement Grout <input type="checkbox"/> Chipped Bentonite	

(7) Sealing Material Used	From (Ft.)	To (Ft.)	No. of Bags, Sacks Sealant or Volume	Mix Ratio or Mud Weight
<u>3/8" Holeplug - chipped bentonite</u>	<u>Surface</u>	<u>18</u>	<u>3</u>	<u>50 lb. bags</u>

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work <u>Boon Longyear / Darkest Moore</u>		(10) FOR DNR OR COUNTY USE ONLY	
Signature of Person Doing Work <u>Robert M. Ollrich</u>	Date Signed <u>8-24-99</u>	Date Received/Inspected	District/County
Street or Route <u>25 Kessel Court Court, Sub 201</u>	Telephone Number <u>(608) 273-2886</u>	Reviewer/Inspector	
City, State, Zip Code <u>Madison, WI 53711</u>		Follow-up Necessary	

Page 2 of 2[illegible]

SOIL BORING LOG INFORMATION

Form 4400-122

7-91

Route To

- ☐ Solid Waste
☐ Wastewater
☐ Emergency Response

- ☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other _____

Page 1 of 2

Facility / Project Name Northern States Power		License/Permit/Monitoring Number _____		Boring Number B-36 / MW-16	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear - Ryan Fischer		Date Drilling Started 08 / 23 / 99 MM / DD / YY		Date Drilling Completed 08 / 23 / 99 MM / DD / YY	
DNR Facility Well No. _____		WI License Well No. _____		Common Well Name _____	
Final Static Water Level _____ Feet MSL		Surface Elevation _____ Feet MSL		Borehole Diameter 8.3 inches	
Boring Location State Plane SW 1/4 of NW 1/4 of Section 33 T 48 N R 4 E		Local Grid Location (If Applicable) Lat CL Long CL		<input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
County Ashland		DNR County Code 0 2		Civil Town / City / or Village City of Ashland	

Sample Number	Length Recovered (N)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					Remarks/Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	
1	16	1.2 2.3	1	Asphalt 0-3" gravel sub-base										
			2	SILT, some sand, some gravel, slightly moist, non-plastic, firm reddish brown	ML			4.4	4					
2	12	2.3 4.5	3	CLAY, some silt, trace gravel, little sand, slightly moist, soft, firm, low to non-plastic, reddish brown	CL									
			4	CLAY, some silt, little sand, little gravel, slightly moist, firm, low plasticity, reddish brown	CL			8.5	7					
3	22	3.4 4.4	5	SILT, trace clay, slightly moist, firm, non-plastic, reddish brown	ML									
			6	CLAY, some silt, trace sand, trace gravel, very moist, low plasticity, reddish brown	CL				8					
4	22	8.9 10.12	7											
			8	CLAY, some silt, trace sand, trace gravel, very moist, low plasticity, stiff, reddish brown					19					
5	22	3.3 4.5	9											
			10	As above - firm to stiff					7					
6	23	10.12 13.15	11											
			12	CLAY, some silt, some sand, little gravel, slightly moist, very stiff, low plasticity, reddish brown					25					
7	17	8.10 13.12	13											
			14						23					

I hereby certify that the information on this form is true and correct to the best of my knowledge

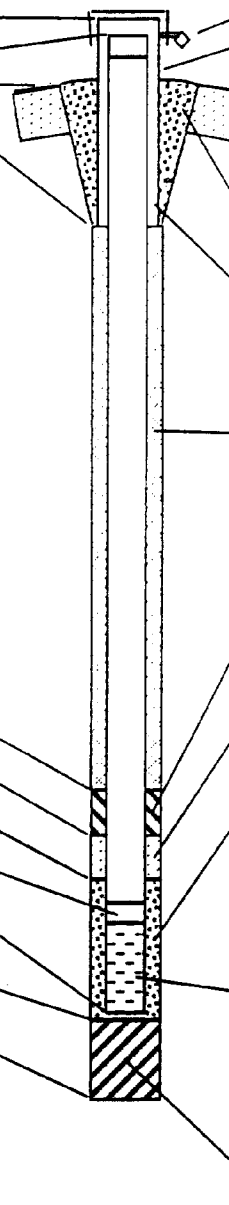
Signature *Matt McElroy*

Firm **Dames & Moore, Madison, WI**

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$4,000 for each violation. Fines not less than \$10 nor more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats

Page 2 of 2[illegible]

Facility/Project Name NSP-Ashland	Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> E. <input type="checkbox"/> S. <input type="checkbox"/> W.	Well Name MW-16
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ St. Plane _____ ft. N. _____ ft. E.	Wis. Unique Well Number _____ DNR Well Number _____
Type of Well Water Table Observation Well <input checked="" type="checkbox"/> 11 Piezometer <input type="checkbox"/> 12	Distance Well Is From Waste/Source Boundary	Date Well Installed 0 8 / 2 5 / 9 9 m m d d y y
Is Well A Point of Enforcement Std. Application? <input type="checkbox"/> Yes <input type="checkbox"/> No	Section Location of Waste/Source SW 1/4 of NW 1/4 of Sec. 33 T. 48 N. R. 4 <input checked="" type="checkbox"/> E <input type="checkbox"/> W	Well Installed By: (Person's Name and Firm) Ryan Fischer Boart Longyear
	Location of Well Relative to Waste/Source u <input type="checkbox"/> Ungradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	

<p>A. Protective pipe, top elevation <u>6 4 2.5</u> ft. MSL</p> <p>B. Well casing, top elevation <u>6 4 2.2</u> ft. MSL</p> <p>C. Land surface elevation <u>6 4 2.5</u> ft. MSL</p> <p>D. Surface seal, bottom <u>6 4 1.5</u> ft MSL or <u>1.0</u> ft</p> <p>12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input checked="" type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/></p> <p>13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>14. Drilling method used: Rotary <input type="checkbox"/> 5 0 Hollow Stem Auger <input checked="" type="checkbox"/> 4 1 Other <input type="checkbox"/></p> <p>15. Drilling fluid used: Water <input type="checkbox"/> 0 2 Air <input type="checkbox"/> 0 1 Drilling Mud <input type="checkbox"/> 0 3 None <input checked="" type="checkbox"/> 9 9</p> <p>16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe: _____</p> <p>17. Source of water (attached analysis) _____</p>	 <p>1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>2. Protective cover pipe: a. Inside diameter: <u>9.0</u> in. b. Length: <u>1.0</u> ft. c. Material: Steel <input type="checkbox"/> 0 4 Flush mount <input checked="" type="checkbox"/> Other <input type="checkbox"/> d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____</p> <p>3. Surface seal: Bentonite <input type="checkbox"/> 3 0 Concrete <input checked="" type="checkbox"/> 0 1 Other <input type="checkbox"/></p> <p>4. Material between well casing and protective pipe: Bentonite <input type="checkbox"/> 3 0 Annular Space Seal <input type="checkbox"/> sand <input checked="" type="checkbox"/> Other <input type="checkbox"/></p> <p>5. Annular space seal: a. Granular Bentonite <input checked="" type="checkbox"/> 3 3 b. <u> </u> Lbs/gal mud weight Bentonite-sand slurry <input type="checkbox"/> 3 5 c. <u> </u> Lbs/gal mud weight Bentonite slurry <input type="checkbox"/> 3 1 d. <u> </u> % Bentonite Bentonite-cement grout <input type="checkbox"/> 5 0 e. <u>50</u> lbs Ft³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 0 1 Tremie pumped <input type="checkbox"/> 0 2 Gravity <input checked="" type="checkbox"/> 0 8</p> <p>6. Bentonite seal: a. Bentonite granules <input checked="" type="checkbox"/> 3 3 b. <input type="checkbox"/> 1 4 in. <input checked="" type="checkbox"/> 3 8 in. <input type="checkbox"/> 1 2 in. Bentonite pellets <input type="checkbox"/> 3 2 c. Hole plug <input type="checkbox"/> Other <input type="checkbox"/></p> <p>7. Fine sand material: Manufacturer, product name & mesh size a. BB #7 <input type="checkbox"/> b. Volume added <u>50</u> lbs</p> <p>8. Filter pack material: Manufacturer, product name & mesh size a. Red Flint #30 <input type="checkbox"/> b. Volume added <u>400</u> lbs</p> <p>9. Well casing: Flush threaded PVC schedule 40 <input checked="" type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input type="checkbox"/> 2 4 Other <input type="checkbox"/></p> <p>10. Screen material: PVC sched. 40 a. Screen type: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/> b. Manufacturer <u>Northern Air</u> c. Slot size <u>0.010</u> in. d. Slotted length: <u>10.0</u> ft.</p> <p>11. Backfill material (below filter pack): None <input type="checkbox"/> 1 4 <u>Natural Collapse</u> <input checked="" type="checkbox"/></p>
---	--

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Mark A. McCollough Firm Dames & Moore

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10. nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: shaded areas are for DNR use only. See instruction for more information including where the completed form should be sent.

State of Wisconsin Department of Natural Resources	Route to: Solid Waste <input type="checkbox"/> Haz. Waste <input type="checkbox"/> Wastewater <input type="checkbox"/> Env. Response & Repair <input type="checkbox"/> Underground Tanks <input type="checkbox"/> Other <input type="checkbox"/>	MONITORING WELL CONSTRUCTION Form 4400-113B Rev: 4-90
Facility/Project Name NSP - Ashland	County Name Ashland	Well Name MW-16
Facility License, Permit or Monitoring Number 	County Code 02	<div style="background-color: #cccccc; padding: 2px;"> Wis. Unique Well Number </div> <div style="background-color: #cccccc; padding: 2px;"> DNR Well Number </div>

<p>1. Can this well be purged dry? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>2. Well development method</p> <table style="width: 100%;"> <tr><td>surged with bailer and bailed</td><td><input checked="" type="checkbox"/> 4 1</td></tr> <tr><td>surged with bailer and pumped</td><td><input type="checkbox"/> 6 1</td></tr> <tr><td>surged with block and bailed</td><td><input type="checkbox"/> 4 2</td></tr> <tr><td>surged with block and pumped</td><td><input type="checkbox"/> 6 2</td></tr> <tr><td>surged with block, bailed and pumped</td><td><input type="checkbox"/> 7 0</td></tr> <tr><td>compressed air</td><td><input type="checkbox"/> 2 0</td></tr> <tr><td>bailer only</td><td><input type="checkbox"/> 1 0</td></tr> <tr><td>pumped only</td><td><input type="checkbox"/> 5 1</td></tr> <tr><td>pumped slowly</td><td><input type="checkbox"/> 5 0</td></tr> <tr><td>Other</td><td><input type="checkbox"/> </td></tr> </table> <p>3. Time spent developing well 2 2 5 min.</p> <p>4. Depth of well (from top of well casing) 1 5 7 ft.</p> <p>5. Inside diameter of well 2 0 5 in.</p> <p>6. Volume of waters in filter pack and well casing 9 5 gal.</p> <p>7. Volume of water removed from well 4 8 0 gal.</p> <p>8. Volume of water added (if any) gal.</p> <p>9. Source of water added _____</p> <p>10. Analysis performed on water added? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, attach results)</p>	surged with bailer and bailed	<input checked="" type="checkbox"/> 4 1	surged with bailer and pumped	<input type="checkbox"/> 6 1	surged with block and bailed	<input type="checkbox"/> 4 2	surged with block and pumped	<input type="checkbox"/> 6 2	surged with block, bailed and pumped	<input type="checkbox"/> 7 0	compressed air	<input type="checkbox"/> 2 0	bailer only	<input type="checkbox"/> 1 0	pumped only	<input type="checkbox"/> 5 1	pumped slowly	<input type="checkbox"/> 5 0	Other	<input type="checkbox"/> 	<table style="width: 100%;"> <tr> <th></th> <th style="text-align: center;">Before Development</th> <th style="text-align: center;">After Development</th> </tr> <tr> <td>11. Depth to Water (from top of well casing)</td> <td>a. 5 0 0 ft.</td> <td>4 6 4 ft.</td> </tr> <tr> <td>Date</td> <td>b. 0 8 / 2 4 / 9 9 m m d d y y</td> <td>0 8 / 2 8 / 9 9 m m d d y y</td> </tr> <tr> <td>Time</td> <td>c. 0 5 : 0 0 <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.</td> <td>1 1 : 1 0 <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.</td> </tr> <tr> <td>12. Sediment in well bottom</td> <td> inches</td> <td> inches</td> </tr> <tr> <td>13. Water clarity</td> <td> Clear <input type="checkbox"/> 1 0 Turbid <input checked="" type="checkbox"/> 1 5 (Describe) <u>Red-brown, high turbidity</u> </td> <td> Clear <input type="checkbox"/> 2 0 Turbid <input checked="" type="checkbox"/> 2 5 (Describe) <u>same</u> </td> </tr> <tr> <td colspan="3">Fill in if drilling fluids were used and well is at solid waste facility</td> </tr> <tr> <td>14. Total suspended solids</td> <td> mg/l</td> <td> mg/l</td> </tr> <tr> <td>15. COD</td> <td> mg/l</td> <td> mg/l</td> </tr> </table>		Before Development	After Development	11. Depth to Water (from top of well casing)	a. 5 0 0 ft.	4 6 4 ft.	Date	b. 0 8 / 2 4 / 9 9 m m d d y y	0 8 / 2 8 / 9 9 m m d d y y	Time	c. 0 5 : 0 0 <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	1 1 : 1 0 <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	12. Sediment in well bottom	 inches	 inches	13. Water clarity	Clear <input type="checkbox"/> 1 0 Turbid <input checked="" type="checkbox"/> 1 5 (Describe) <u>Red-brown, high turbidity</u>	Clear <input type="checkbox"/> 2 0 Turbid <input checked="" type="checkbox"/> 2 5 (Describe) <u>same</u>	Fill in if drilling fluids were used and well is at solid waste facility			14. Total suspended solids	 mg/l	 mg/l	15. COD	 mg/l	 mg/l
surged with bailer and bailed	<input checked="" type="checkbox"/> 4 1																																															
surged with bailer and pumped	<input type="checkbox"/> 6 1																																															
surged with block and bailed	<input type="checkbox"/> 4 2																																															
surged with block and pumped	<input type="checkbox"/> 6 2																																															
surged with block, bailed and pumped	<input type="checkbox"/> 7 0																																															
compressed air	<input type="checkbox"/> 2 0																																															
bailer only	<input type="checkbox"/> 1 0																																															
pumped only	<input type="checkbox"/> 5 1																																															
pumped slowly	<input type="checkbox"/> 5 0																																															
Other	<input type="checkbox"/> 																																															
	Before Development	After Development																																														
11. Depth to Water (from top of well casing)	a. 5 0 0 ft.	4 6 4 ft.																																														
Date	b. 0 8 / 2 4 / 9 9 m m d d y y	0 8 / 2 8 / 9 9 m m d d y y																																														
Time	c. 0 5 : 0 0 <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	1 1 : 1 0 <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.																																														
12. Sediment in well bottom	 inches	 inches																																														
13. Water clarity	Clear <input type="checkbox"/> 1 0 Turbid <input checked="" type="checkbox"/> 1 5 (Describe) <u>Red-brown, high turbidity</u>	Clear <input type="checkbox"/> 2 0 Turbid <input checked="" type="checkbox"/> 2 5 (Describe) <u>same</u>																																														
Fill in if drilling fluids were used and well is at solid waste facility																																																
14. Total suspended solids	 mg/l	 mg/l																																														
15. COD	 mg/l	 mg/l																																														
16. Additional comments on development:																																																

Well developed by: Person's Name and Firm

 Name: Mark McCollooch

 Firm: Dames & Moore

I hereby certify that the above information is true and correct to the best of my knowledge.

 Signature: Mark McCollooch

 Print Initials: M S M

 Firm: Dames & Moore

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

SOIL BORING LOG INFORMATION

Form 4400-122

7-91

Route To:

- ☐ Solid Waste
☐ Wastewater
☐ Emergency Response

- ☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

Page 1 of 2

Facility / Project Name Northern States Power		License Permit/Monitoring Number		Boring Number B-37	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear - Ryan Fischer		Date Drilling Started 08 / 23 / 99 M M D D Y Y		Date Drilling Completed 08 / 23 / 99 M M D D Y Y	
DNR Facility Well No.		WI Unique Well No.		Common Well Name	
Final Static Water Level		Surface Elevation		Borehole Diameter	
Feet MSL		Feet MSL		8.3 inches	
Boring Location State Plane SW 1/4 of NW 1/4 of Section 33 T 48 N R 4 E		Lat		Local Grid Location (If Applicable)	
County Ashland		DNR County Code 0 2		City / or Village City of Ashland	

Sample Number	Length Recovered (N)	Flow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					ROD/Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	
1	12	2.2 2.3	1	Asphalt 0-3", gravel sub-base 3-6"	ML			4.2	4					
				SILT, some sand, little gravel, little clay, dry, firm, non-plastic, reddish brown										
2	12	2.5 4.5	2 3	CLAY, some silt, moist, firm, trace sand, trace gravel, low plasticity, reddish brown -slightly moist with depth	CL			8.0	9					
3	17	3.5 5.6	4 5	CLAY, some silt, little sand, little gravel, slightly moist, stiff, low plasticity, reddish brown				4.2	11					
4	20	2.4 4.6	6 7					6.0	8					
5	24	7.10 10.9	8 9	CLAY, some silt, little sand, trace gravel, moist, very stiff, low plasticity, reddish brown				9.6	20					
6	22	8.10 12.13	10 11					12.5	22					
7	20	10.13 15.17	12 13	CLAY - as above, slightly moist				8.6	28					

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *Mark L. McCallum*


Firm **Dames & Moore, Madison, WI**

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$4,000 for each violation. Fines not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats

f:\wddpcysb\borings ppt

Boring Number B-37

Page 2 of 2

Sample		Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					ROD/Comments
Number	Length Recovered (ft)								Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	
8	20	20,25 28,30	15	CLAY - as above, slightly moist - gravel @ 15'	CL			6.5	53					
9	14	10,12 13,14	17					4.5	25					
			18	EOB @ 13 feet. Backfilled borehole with 3 - 50 lb bags of bentonite hole plug.										
			19											
			20											
			21											
			22											
			23											
			24											
			25											
			26											
			27											
			28											
			29											
			30											
			31											
			32											
			33											
			34											
			35											
			36											

All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION		(2) FACILITY NAME	
Well/Drillhole/Borehole Location <u>B-37</u>	County <u>Ashland</u>	Original Well Owner (If Known) <u>Northern States Power</u>	
SW 1/4 of NW 1/4 of Sec. 33 : T. 48 N. R. 4 <input checked="" type="checkbox"/> E <input type="checkbox"/> W (If applicable)		Present Well Owner <u>Northern States Power</u>	
Gov't Lot	Grid Number	Street or Route <u>301 Lake Shore Drive East</u>	
Grid Location ft. <input type="checkbox"/> N. <input type="checkbox"/> S. ft. <input type="checkbox"/> E. <input type="checkbox"/> W.		City, State, Zip Code <u>Ashland, WI 54806</u>	
Civil Town Name <u>Ashland</u>		Factory Well No. and/or Name (If Applicable) <u>Northern States Power</u>	WI Unique Well No. _____
Street Address of Well <u>301 Lake Shore Drive East</u>		Reason For Abandonment <u>Soil Boring</u>	
City, Village <u>Ashland, WI</u>		Date of Abandonment <u>8.23.99</u>	

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION		(4) Depth to Water (Feet) _____	
Original Well/Drillhole/Borehole Construction Completed On (Date) <u>8.23.99</u>		Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If No, Explain <u>Non-used</u>	
<input type="checkbox"/> Monitoring Well <input type="checkbox"/> Water Well <input type="checkbox"/> Drillhole <input checked="" type="checkbox"/> Borehole	Construction Report Available? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Construction Type: <input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (Specify) _____		(5) Required Method of Placing Sealing Material <input checked="" type="checkbox"/> Conductor Pipe Gravity <input type="checkbox"/> Conductor Pipe Pumped <input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain) _____	
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock Total Well Depth (ft.) <u>18</u> Casing Diameter (ins.) <u> </u> (From ground surface) Casing Depth (ft.) <u> </u> Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown If Yes, To What Depth? <u>NA</u> Feet		(6) Sealing Materials For monitoring wells and monitoring well boreholes only <input type="checkbox"/> Near Cement Grout <input type="checkbox"/> Bentonite Pellets <input type="checkbox"/> Sand-Cement (Concrete) Grout <input checked="" type="checkbox"/> Granular Bentonite <input type="checkbox"/> Concrete <input type="checkbox"/> Bentonite - Cement Grout <input type="checkbox"/> Clay-Sand Slurry <input type="checkbox"/> Bentonite-Sand Slurry <input type="checkbox"/> Chipped Bentonite	

Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
<u>3/8" Holeplug - chipped bentonite</u>	<u>Surface</u>	<u>18</u>	<u>3</u>	<u>50 lb. bags</u>

(9) Comments:

(9) Name of Person or Firm Doing Sealing Work <u>Bart Longyear / Domes & More</u>	
Signature of Person Doing Work <u>Mike McEllish</u>	Date Signed <u>8.23.99</u>
Street or Route <u>25 Kessel Court Sub 201</u>	Telephone Number <u>(608) 273-2886</u>
City, State, Zip Code <u>Madison, WI 53711</u>	

(10) FOR DNR OR COUNTY USE ONLY	
Date Received/Inspected	District/County
Reviewer/Inspector	
Follow-up Necessary	

SOIL BORING LOG INFORMATION

Form 4400-122

7-91

Route To:

- ☐ Solid Waste
☐ Wastewater
☐ Emergency Response

- ☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other _____

Page 1 of 1

Facility / Project Name Northern States Power		License/Permit/Monitoring Number _____		Boring Number MW-17	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear - Ryan Fischer		Date Drilling Started <u>08</u> / <u>25</u> / <u>99</u> M M D D Y Y		Date Drilling Completed <u>08</u> / <u>25</u> / <u>99</u> M M D D Y Y	
DNR Facility Well No. _____		WI Unique Well No. _____		Common Well Name _____	
Final Static Water Level _____ Feet MSL		Surface Elevation _____ Feet MSL		Borehole Diameter 8.3 inches	
Boring Location State Plane _____ N. _____ E S/C/N		Lat _____		Local Grid Location (If Applicable) <input type="checkbox"/> N <input type="checkbox"/> E	
<u>SW</u> 1/4 of <u>NW</u> 1/4 of Section <u>33</u> T <u>48</u> N R <u>4</u> E		Long _____		_____ Feet <input type="checkbox"/> S _____ Feet <input type="checkbox"/> W	
County Ashland		DNR County Code 0 2		Civil Town / City / or Village City of Ashland	

Sample Number	Length Recovered (N)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					ROD/Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	
			0	Gravel Driveway										
			2											
			4	-No soil samples collected. See boring log for adjacent well MW-17A.										
			6											
			8											
			10											
			12											
			14											
			16											
			18	EOB @ 18 ft.										
			20	Set well MW-17 @ 15 ft.										
			22											
			24											
			26											
			28											

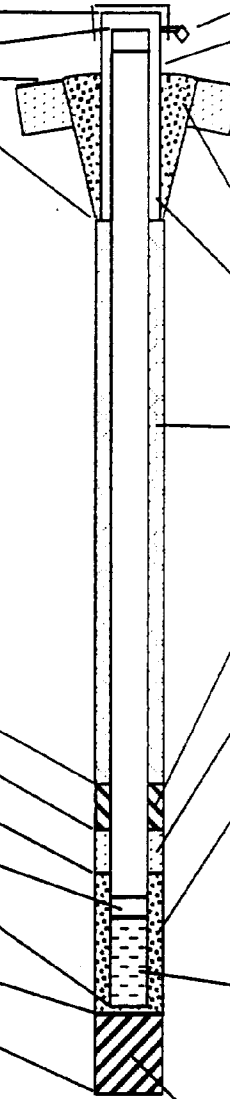
f:\wddpc\slsboring ppt

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Mate & McColloch Firm Dames & Moore, Madison, WI

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$4,000 for each violation. Fines not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats

State of Wisconsin Department of Natural Resources		Route to: Solid Waste <input type="checkbox"/> Haz. Waste <input type="checkbox"/> Wastewater <input type="checkbox"/> Env. Response & Repair <input type="checkbox"/> Underground Tanks <input type="checkbox"/> Other <input type="checkbox"/>		MONITORING WELL CONSTRUCTION Form 4400-113A Rev. 4-90	
Facility/Project Name NSP-Ashland		Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. _____ ft. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.		Well Name MW-17	
Facility License, Permit or Monitoring Number _____		Grid Origin Location Lat. _____ Long. _____ St. Plane _____ ft. N. _____ ft. E.		Wis. Unique Well Number _____ DNR Well Number _____	
Type of Well Water Table Observation Well <input checked="" type="checkbox"/> 11 Piezometer <input type="checkbox"/> 12		Distance Well Is From Waste/Source Boundary _____		Date Well Installed 08 / 23 / 99 m m d d y y	
Is Well A Point of Enforcement Std. Application? <input type="checkbox"/> Yes <input type="checkbox"/> No		Section Location of Waste/Source <input checked="" type="checkbox"/> E SW1/4 of NW1/4 of Sec. 33 T. 48 N. R. 4 <input type="checkbox"/> W		Well Installed By: (Person's Name and Firm) Ryan Fischer Boart Longyear	
Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known					

<p>A. Protective pipe, top elevation <u>634.4</u> ft. MSL</p> <p>B. Well casing, top elevation <u>633.8</u> ft. MSL</p> <p>C. Land surface elevation <u>634.4</u> ft. MSL</p> <p>D. Surface seal, bottom <u>633.4</u> ft MSL or <u>1.0</u> ft</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input checked="" type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/></p> <p>13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>14. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input checked="" type="checkbox"/> 41 Other <input type="checkbox"/> _____</p> <p>15. Drilling fluid used: Water <input type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input checked="" type="checkbox"/> 99</p> <p>16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe: _____</p> <p>17. Source of water (attached analysis): _____</p> </div> <p>E. Bentonite seal, top <u>632.9</u> ft MSL or <u>1.5</u> ft</p> <p>F. Fine sand, top <u>630.4</u> ft MSL or <u>4.0</u> ft</p> <p>G. Filter pack, top <u>630.4</u> ft MSL or <u>4.0</u> ft</p> <p>H. Screen joint, top <u>629.4</u> ft MSL or <u>5.0</u> ft</p> <p>I. Well bottom <u>619.4</u> ft MSL or <u>15.0</u> ft</p> <p>J. Filter pack, bottom <u>617.4</u> ft MSL or <u>17.0</u> ft</p> <p>K. Borehole, bottom <u>617.4</u> ft MSL or <u>17.0</u> ft</p> <p>L. Borehole, diameter <u>8.3</u> in.</p> <p>M. O.D. well casing <u>23.8</u> in.</p> <p>N. I.D. well casing <u>20.5</u> in.</p>	 <p>1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>2. Protective cover pipe: a. Inside diameter: <u>9.0</u> in. b. Length: <u>1.0</u> ft. c. Material: Steel <input type="checkbox"/> 04 Flush mount <input checked="" type="checkbox"/> Other <input type="checkbox"/> _____ d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____</p> <p>3. Surface seal: Bentonite <input type="checkbox"/> 30 Concrete <input checked="" type="checkbox"/> 01 Other <input type="checkbox"/> _____</p> <p>4. Material between well casing and protective pipe: Bentonite <input type="checkbox"/> 30 Annular Space Seal <input type="checkbox"/> _____ sand <input checked="" type="checkbox"/> Other <input type="checkbox"/> _____</p> <p>5. Annular space seal: a. Granular Bentonite <input checked="" type="checkbox"/> 33 b. _____ Lbs/gal mud weight _____ Bentonite-sand slurry <input type="checkbox"/> 35 c. _____ Lbs/gal mud weight _____ Bentonite slurry <input type="checkbox"/> 31 d. _____ % Bentonite _____ Bentonite-cement grout <input type="checkbox"/> 50 e. <u>50</u> lbs Ft³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 01 Tremie pumped <input type="checkbox"/> 02 Gravity <input checked="" type="checkbox"/> 08</p> <p>6. Bentonite seal: a. Bentonite granules <input checked="" type="checkbox"/> 33 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input type="checkbox"/> 32 c. <u>Hole plug</u> <input type="checkbox"/> Other <input type="checkbox"/> _____</p> <p>7. Fine sand material: Manufacturer, product name & mesh size a. <u>BB #7</u> b. Volume added <u>50</u> lbs</p> <p>8. Filter pack material: Manufacturer, product name & mesh size a. <u>Red Flint #30</u> b. Volume added <u>400</u> lbs</p> <p>9. Well casing: Flush threaded PVC schedule 40 <input checked="" type="checkbox"/> 23 Flush threaded PVC schedule 80 <input type="checkbox"/> 24 Other <input type="checkbox"/> _____</p> <p>10. Screen material: <u>PVC sched. 40</u> a. Screen type: Factory cut <input checked="" type="checkbox"/> 11 Continuous slot <input type="checkbox"/> 01 Other <input type="checkbox"/> _____ b. Manufacturer <u>Northern air</u> c. Slot size <u>0.010</u> in. d. Slotted length: <u>10.0</u> ft.</p> <p>11. Backfill material (below filter pack): None <input type="checkbox"/> 14 <u>Natural Collapse</u> <input checked="" type="checkbox"/> Other <input type="checkbox"/> _____</p>
--	--

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Mark A. McCall Firm Dames & Moore

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: shaded areas are for DNR use only. See instruction for more information including where the completed form should be sent.

State of Wisconsin Department of Natural Resources	Route to: Solid Waste <input type="checkbox"/> Haz. Waste <input type="checkbox"/> Wastewater <input type="checkbox"/> Env. Response & Repair <input type="checkbox"/> Underground Tanks <input type="checkbox"/> Other <input type="checkbox"/>	MONITORING WELL CONSTRUCTION Form 4400-113B Rev. 4-90
Facility/Project Name NSP - Ashland	County Name Ashland	Well Name MW-17
Facility License, Permit or Monitoring Number _____	County Code 02	Wis. Unique Well Number _____
DNR Well Number _____		

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

- ☒ 4 1
☐ 6 1
☐ 4 2
☐ 6 2
☐ 7 0
☐ 2 0
☐ 1 0
☐ 5 1
☐ 5 0
☐ Other _____

3. Time spent developing well _____ 2 1 0 min.

4. Depth of well (from top of well casing) _____ 1 6 9 ft.

5. Inside diameter of well _____ 2 0 5 in.

6. Volume of waters in filter pack and well casing _____ 4 4 gal.

7. Volume of water removed from well _____ 2 9 0 gal.

8. Volume of water added (if any) _____ gal.

9. Source of water added _____

10. Analysis performed on water added? ☐ Yes ☒ No
 (If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. _____ 1 2 0 0 ft.	_____ 5 9 1 ft.

Date

b. _____ 0 8 / 2 5 / 9 9
 m m d d y y

Time

c. _____ 1 0 : 0 5 _____ a.m. _____ a.m.
 p.m. _____ 1 1 : 5 0 p.m.

12. Sediment in well bottom _____ inches _____ inches

13. Water clarity

Clear ☐ 1 0
 Turbid ☒ 1 5
 (Describe)

Clear ☐ 2 0
 Turbid ☒ 2 5
 (Describe)

Red-brown, high turbidity

same

Fill in if drilling fluids were used and well is at solid waste facility.

14. Total suspended solids _____ mg/l _____ mg/l

15. COD _____ mg/l _____ mg/l

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Mark McCollooch

Firm: Dames & Moore

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Mark & McCollooch

Print Initials: M S M

Firm: Dames & Moore

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

SOIL BORING LOG INFORMATION

Form 4400-122

7-91

Route To

- ☐ Solid Waste
☐ Wastewater
☐ Emergency Response

- ☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other _____

Page 1 of 3

Facility / Project Name Northern States Power		License/Permit/Monitoring Number _____		Boring Number MW-17A	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear - Ryan Fischer		Date Drilling Started <u>08</u> / <u>24</u> / <u>99</u> M M D D Y Y		Date Drilling Completed <u>08</u> / <u>24</u> / <u>99</u> M M D D Y Y	
DNR Facility Well No. _____		WI Unique Well No. _____		Common Well Name _____	
Final Static Water Level _____ Feet MSL		Surface Elevation _____ Feet MSL		Borehole Diameter 8.3 inches	
Boring Location State Plane _____ N. _____ E S/C/N		Lat _____		Local Grid Location (If Applicable) <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S _____ Feet <input type="checkbox"/> W	
County Ashland		DNR County Code 0 2		Civil Town / City / or Village City of Ashland	

Sample Number	Length Recovered (ft)	Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					ROD/Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	
				Gravel Driveway - Storage yard										
1	10	5.6	3	CLAY, some silt, trace sand, trace gravel, stiff, slightly moist, low plasticity, reddish brown.	CL				12					
2	10	20.21	6	CLAY, some silt, some sand, little gravel, dry, low to non-plastic, hard, reddish brown	CL-ML				45					
3	18	8.7	8	CLAY, some silt, trace sand, trace gravel, moist, stiff, low plasticity, reddish brown.	CL				14					
4	18	6.7	11						16					
5	15	6.6	13	CLAY, some silt, little sand, trace gravel, slightly moist, stiff, low plasticity, reddish brown.					13					

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Mark S. McElroy

Firm Dames & Moore, Madison, WI

This form is authorized by Chapters 144.147 and 162. Ws. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$4,000 for each violation. Fines not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Ws. Stats

f:\wddpc\jst\borring.ppt

Boring Number **MW-17A**

Page **2** of **3**

Sample		Blow Counts (N)	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					ROD/Comments
Number	Length Recovered (ft)								Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	
6	16	10, 12 14	15 16	CLAY, some silt, little sand, trace gravel, slightly moist, stiff, low plasticity, reddish brown.	CL				26					
7	16	12, 10 14	18 19						24					
8	14	17, 22 31	20 21	CLAY, some silt, trace gravel, little sand, slightly moist, dry, hard, low plasticity, reddish brown.	CL				53					
9	17	19, 28 30	23 24	3-inch silty sand seam at 24 ft (SM), fine to medium grained, very moist, loose.					58					
10	18	21, 27 34	25 25	CLAY, some silt, little sand, trace gravel, slightly moist, hard, low plasticity, reddish brown. 2-inch silty sand seams (SM) at 25.5 and 26 feet.					61					
11	18	18, 14 25	28 29						40					
12	18	11, 15 16	30 31						31					
13	18	15, 19 21	33 34	SAND, little silt, trace gravel, poorly graded, medium dense, wet, reddish brown.	SM				40					
14	18	15, 21 26	35 36	CLAY, some silt, little sand, trace gravel, slightly moist, hard, low plasticity, reddish brown.	CL				47					

Boring Number MW-17A

Page 3 of 3[illegible]

State of Wisconsin Department of Natural Resources		Route to: Solid Waste <input type="checkbox"/> Haz. Waste <input type="checkbox"/> Wastewater <input type="checkbox"/> Env. Response & Repair <input type="checkbox"/> Underground Tanks <input type="checkbox"/> Other <input type="checkbox"/>		MONITORING WELL CONSTRUCTION Form 4400-113A Rev. 4-90	
Facility/Project Name <div style="text-align: center; font-weight: bold;">NSP-Ashland</div>		Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. _____ ft. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.		Well Name <div style="text-align: center; font-weight: bold;">MW-17A</div>	
Facility License, Permit or Monitoring Number _____		Grid Origin Location Lat. _____ Long. _____ St. Plane _____ ft. N. _____ ft. E.		Wis. Unique Well Number _____ DNR Well Number _____	
Type of Well Water Table Observation Well <input type="checkbox"/> 1 Piezometer <input checked="" type="checkbox"/> 2				Date Well Installed <div style="text-align: center;"> <u>0</u> <u>8</u> / <u>2</u> <u>4</u> / <u>2</u> <u>9</u> m m d d y y </div>	
Distance Well Is From Waste/Source Boundary _____		Section Location of Waste/Source SW 1/4 of NW 1/4 of Sec. 33 T. 48 N. R. 4 <input checked="" type="checkbox"/> E <input type="checkbox"/> W		Well Installed By: (Person's Name and Firm) <div style="text-align: center;"> Ryan Fischer Boart Longyear </div>	
Is Well A Point of Enforcement Std. Application? <input type="checkbox"/> Yes <input type="checkbox"/> No		Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known			

A. Protective pipe, top elevation 6 3 4 . 4 0 ft. MSL

B. Well casing, top elevation 6 3 3 . 6 8 ft. MSL

C. Land surface elevation 6 3 4 . 4 ft. MSL

D. Surface seal, bottom _____ ft. MSL or 1 . 0 ft

12. USCS classification of soil near screen:
 GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
 SM ☒ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
 Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 5 0
 Hollow Stem Auger ☒ 4 1
 Other ☐ _____

15. Drilling fluid used: Water ☐ 0 2 Air ☐ 0 1
 Drilling Mud ☐ 0 3 None ☒ 9 9

16. Drilling additives used? ☐ Yes ☒ No
 Describe: _____

17. Source of water (attached analysis):

E. Bentonite seal, top 6 3 3 . 4 ft. MSL or 1 . 0 ft

F. Fine sand, top 5 8 8 . 4 ft. MSL or 4 . 0 ft

G. Filter pack, top 5 8 6 . 4 ft. MSL or 4 . 8 . 0 ft

H. Screen joint, top 5 8 4 . 4 ft. MSL or 5 . 0 . 0 ft

I. Well bottom 5 7 9 . 4 ft. MSL or 5 . 5 . 0 ft

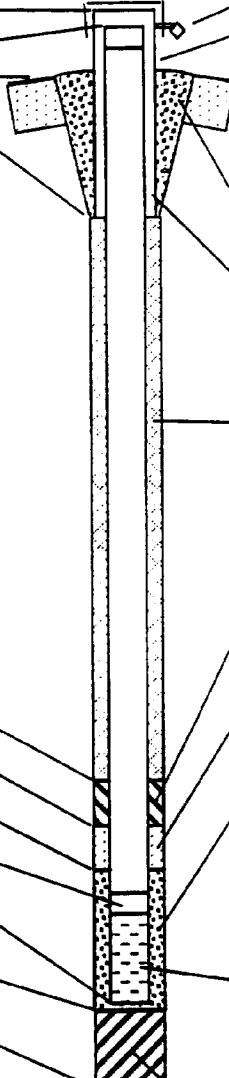
J. Filter pack, bottom 5 7 8 . 4 ft. MSL or 5 . 6 . 5 ft

K. Borehole, bottom 5 7 8 . 4 ft. MSL or 5 . 6 . 5 ft

L. Borehole, diameter 8 . 3 in.

M. O.D. well casing 2 . 3 . 8 in.

N. I.D. well casing 2 . 0 . 5 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
 a. Inside diameter: _____ in.
 b. Length: _____ ft.
 c. Material: _____
 Flush mount ☐ Other ☒ _____
 d. Additional protection? ☐ Yes ☒ No
 If yes, describe: _____

3. Surface seal: Bentonite ☐ 3 0
 Concrete ☒ 0 1
 Other ☐ _____

4. Material between well casing and protective pipe:
 Bentonite ☐ 3 0
 sand ☒ Annular Space Seal ☐ _____
 Other ☐ _____

5. Annular space seal:
 a. Granular Bentonite ☒ 3 3
 b. _____ Lbs/gal mud weight _____ Bentonite-sand slurry ☐ 3 5
 c. _____ Lbs/gal mud weight _____ Bentonite slurry ☐ 3 1
 d. _____ % Bentonite _____ Bentonite-cement grout ☐ 5 0
 e. 1,050 lbs. Ft³ volume added for any of the above
 f. How installed: Tremie ☐ 0 1
 Tremie pumped ☐ 0 2
 Gravity ☒ 0 8

6. Bentonite seal:
 a. Bentonite granules ☐ 3 3
 b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite pellets ☒ 3 2
 c. _____ Hole plug ☐ Other ☐ _____

7. Fine sand material: Manufacturer, product name & mesh size
 a. BB #7 ☐ _____
 b. Volume added 50 lbs

8. Filter pack material: Manufacturer, product name & mesh size
 a. Red Flint #30 ☐ _____
 b. Volume added 200 lbs

9. Well casing: Flush threaded PVC schedule 40 ☒ 2 3
 Flush threaded PVC schedule 80 ☐ 2 4
 Other ☐ _____

10. Screen material: PVC sched. 40 ☐ _____
 a. Screen type: Factory cut ☒ 1 1
 Continuous slot ☐ 0 1
 Other ☐ _____
 b. Manufacturer Northern Air
 c. Slot size 0 0 1 0 in.
 d. Slotted length: 0 5 0 ft.

11. Backfill material (below filter pack): None ☐ 1 4
 Other ☒ _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Mark A. Moore Firm Dames & Moore

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: shaded areas are for DNR use only. See instruction for more information including where the completed form should be sent.

Facility/Project Name NSP - Ashland	County Name Ashland	Well Name MW-17A
Facility License, Permit or Monitoring Number	County Code 02	Wis. Unique Well Number DNR Well Number

		Before Development	After Development
1. Can this well be purged dry? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Depth to Water (from top of well casing)	a. <u>30.5</u> ft.	<u>20.3</u> ft.
2. Well development method	Date	b. <u>08/25/99</u> m m d d y y	<u>08/28/99</u> m m d d y y
<input checked="" type="checkbox"/> 41 surged with bailer and bailed <input type="checkbox"/> 61 surged with bailer and pumped <input type="checkbox"/> 42 surged with block and bailed <input type="checkbox"/> 62 surged with block and pumped <input type="checkbox"/> 70 surged with block, bailed and pumped <input type="checkbox"/> 20 compressed air <input type="checkbox"/> 10 bailer only <input type="checkbox"/> 51 pumped only <input type="checkbox"/> 50 pumped slowly <input type="checkbox"/> Other _____	Time	c. <u>10:00</u> <input type="checkbox"/> a.m. <input type="checkbox"/> p.m.	<u>11:50</u> <input type="checkbox"/> a.m. <input type="checkbox"/> p.m.
3. Time spent developing well <u>175</u> min.	12. Sediment in well bottom	_____ inches	_____ inches
4. Depth of well (from top of well casing) <u>54.6</u> ft.	13. Water clarity	Clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe) <u>Red-brown, high turbidity</u>	Clear <input type="checkbox"/> 20 Turbid <input checked="" type="checkbox"/> 25 (Describe) <u>same</u>
5. Inside diameter of well <u>20.5</u> in.	Fill in if drilling fluids were used and well is at solid waste facility.		
6. Volume of waters in filter pack and well casing <u>9.0</u> gal.	14. Total suspended solids	_____ mg/l	_____ mg/l
7. Volume of water removed from well <u>39.0</u> gal.	15. COD	_____ mg/l	_____ mg/l
8. Volume of water added (if any) _____ gal.			
9. Source of water added _____			
10. Analysis performed on water added? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, attach results)			

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Mark McColloch

Firm: Dames & Moore

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Mark A. McColloch

Print Initials: M S M

Firm: Dames & Moore

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

APPENDIX B

APPENDIX B

LABORATORY REPORTS FOR THE
AUGUST 1999 GROUNDWATER SAMPLES

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 1 NLS PROJECT# 49882

Client:

Dames & Moore
Attn: Dave Tranior
25 Kessel Court
Suite 201
Madison, WI 53711

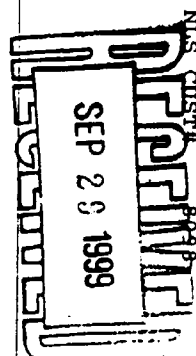
Project Description: NSP 05644-088
Project Title: MSN-R-089-0256

Sample ID: MW-5 NLS#: 210374

Ref. Line 1 of C0C 39313 Description: MW-5
Collected: 08/28/99 Received: 08/26/99 Imported: 09/24/99

Parameter	Result	Units	LOD	LOG	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	2.1	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	ND	mg/L	0.0032	0.011	EPA 335.4	08/27/99	721026460
Iron, dis. as Fe by ICP	1.0	mg/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	ND	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	< 1.3	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	160	ug/L	12	12	SW846 6010	09/21/99	721026460
VOCs (water) by EPA 8021	see attached				SW846 8021	09/03/99	721026460
Base/Neutral/Acid Extraction	yes				SW846 3510	08/27/99	721026460
Semivolatiles GC/MS by 8270C	see attached				SW846	08/28/99	721026460

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate. Sample required dilution prior to analysis preventing surrogate recovery determination. Naphthalene exceeds the calibration curve and should be considered an estimate.



NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Grandon, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

Client:

Dames & Moore
Attn: Dave Tranlor
25 Kessel Court
Suite 201
Madison, WI 53711

PAGE: 2 NLS PROJECT# 49882

NLS CUST# 8098

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: MW-5A NLS#: 210375
Ref. Line 2 of COC 39313 Description: MW-5A
Collected: 08/25/99 Received: 08/26/99 Reported: 09/24/99

Parameter	Result	Units	LOD	LOG	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	15	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	< 0.76	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	0.023	mg/L	0.0032	0.011	EPA 335.4	08/27/99	721026460
Iron, dis. as Fe by ICP	0.74	mg/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	ND	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	< 0.69	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	48	ug/L	12	12	SW846 6010	09/21/99	721026460
VOCs (water) by EPA 8021	see attached				SW846 8021	09/01/99	721026460

Base/Neutral/Acid Extraction
Semi-volatile GC/MS by 8270C

Additional Comments: Naphthalene was present in the laboratory blank at 1.1 ug/L.
yes
see attached

Additional Comments: 2,4-Dimethylphenol and 4-methylphenol had low recoveries in the control, spike and duplicate. Naphthalene concentration exceeds the highest standard in the calibration curve and should be considered an estimated value.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3000

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

Client:

Dames & Moore
Attn: Dave Tranter
25 Kessel Court
Suite 201
Madison, WI 53711

PAGE: 3 NLS PROJECT# 49882
NLS CUST# 8098

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: MM-5A Dup **NLS#:** 210376
Ref line 3 of COC 39313 Description: MM-5A Dup
Collected: 08/25/99 **Received:** 08/26/99 **Reported:** 09/24/99

Parameter	Result	Units	LOD	LOG	Method	Analyzed Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SM846 6010	09/21/99 721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SM846 6010	09/21/99 721026460
Copper, dis. as Cu by ICP	< 0.67	ug/L	0.47	1.7	SM846 6010	09/21/99 721026460
Cyanide, tot. (distilled) as CN	0.024	mg/L	0.0032	0.011	EPA 335.4	08/31/99 721026460
Iron, dis. as Fe by ICP	0.76	mg/L	0.0010	0.0035	SM846 6010	09/21/99 721026460
Lead, dis. as Pb by ICP	ND	ug/L	1.4	5.1	SM846 6010	09/21/99 721026460
Nickel, dis. as Ni by ICP	< 0.97	ug/L	0.66	2.3	SM846 6010	09/21/99 721026460
Zinc, dis. as Zn by ICP	41	ug/L	12	12	SM846 6010	09/21/99 721026460
VOXs (water) by EPA 8021	see attached				SM846 8021	09/01/99 721026460
Base/Neutral/Acid Extraction	Additional Comments:	Naphthalene was present in the laboratory				
Semivolatile GC/MS by 8270C	blank at 1.1 ug/L.					
	yes					
	see attached					

Additional Comments: 2,4-Dimethylphenol and 4-methylphenol had low recoveries in the control, spike and duplicate. Naphthalene concentration exceeds the highest standard in the calibration curve and should be considered an estimated value.

SM846 3510 08/27/99 721026460
SM846 8270C 08/27/99 721026460

NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 4 NLS PROJECT# 49882

Client:

Dames & Moore
Attn: Dave Tranter
25 Kessel Court
Suite 201
Madison, WI 53711

NLS CUST# 8098

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: MW-5B NLS#: 210377
Rel. Line 4 of COC 39313 Description: MW-5B
Additional Comments: Ten-fold dilution analysis performed for metals due to organic content.
Collected: 08/25/99 Received: 08/26/99 Reported: 09/24/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	42	150	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	ND	ug/L	4.7	17	SW846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	0.055	mg/L	0.0032	0.011	EPA 335.4	08/31/99	721026460
Iron, dis. as Fe by ICP	0.10	mg/L	0.010	0.035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	ND	ug/L	14	51	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	ND	ug/L	6.6	23	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	130	ug/L	120	120	SW846 6010	09/21/99	721026460
VOCs (water) by EPA 8021	see attached				SW846 8021	09/01/99	721026460

Additional Comments: Naphthalene was present in the laboratory blank at 1.1 ug/L.

Yes
see attached

SW846 3510 08/27/99 721026460
SW846 8270C 08/28/99 721026460

Additional Comments: 2,4-Dimethylphenol and 4-methylphenol had low recoveries in the control, spike and duplicate.

Base/Neutral/Acid Extraction
Semi-volatile GC/MS by 8270C

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 5 NLS PROJECT# 49882

Client:

Dames & Moore
Attn: Dave Tranior
25 Kessel Court
Suite 201
Madison, WI 53711

NLS CUST# 8098

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: MW-5C NLS#: 210378
Rel. Line 5 of COC 39313 Description: MW 5C
Collected: 08/25/99 Received: 08/26/99 Reported: 09/24/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as Ag by ICP	ND	ug/L	4.2	15	SM846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SM846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	< 1.1	ug/L	0.47	1.7	SM846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	ND	mg/L	0.0032	0.011	EPA 335.4	08/31/99	721026460
Iron, dis. as Fe by ICP	0.011	mg/L	0.0010	0.0035	SM846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	< 2.9	ug/L	1.4	5.1	SM846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	ND	ug/L	0.66	2.3	SM846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	39	ug/L	12	12	SM846 6010	09/21/99	721026460
VOCs (water) by EPA 8021	see attached				SM846 8021	09/01/99	721026460

Base/Neutral/Acid Extraction
Semi-volatile GC/MS by 8270C

Additional Comments: Naphthalene was present in the laboratory blank at 1.1 ug/L.
see attached

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

SM846 3510 08/27/99 721026460
SM846 8270C 08/27/99 721026460

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 6 NLS PROJECT# 49882

Client:

Dames & Moore
Attn: Dave Tranjor
25 Kessel Court
Suite 201
Madison, WI 53711

NLS CUST# 8098

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: MW-8 NLS#: 210379
Ref. Line 6 of COC 39313 Description: MW-8
Collected: 08/24/99 Received: 08/26/99 Reported: 09/24/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	3.0	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	< 0.0070	mg/L	0.0032	0.011	EPA 335.4	08/31/99	721026460
Iron, dis. as Fe by ICP	0.0039	mg/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	< 3.8	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	2.7	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	ND	ug/L	12	12	SW846 6010	09/21/99	721026460
VOCs (water) by EPA 8021	see attached				SW846 8021	09/01/99	721026460
Base/Neutral/Acid Extraction	yes				SW846 3510	08/27/99	721026460
Semivolatile GC/MS by 8270C	see attached				SW846 8270C	08/27/99	721026460

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
 Analytical Laboratory and Environmental Services
 400 North Lake Avenue - Crandon, WI 54520
 Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 7 NLS PROJECT# 49882

NLS CUST# 8098

Client: Dames & Moore

Attn: Dave Tranter
 25 Kessel Court
 Suite 201
 Madison, WI 53711

Project Description: NSP 05644-088
 Project Title: MSN-R-0899-0256

Sample ID: MW-8A NLS#: 210380
 Ref. Line 7 of COC 39313 Description: MW-8A
 Collected: 08/24/99 Received: 08/26/99 Reported: 09/24/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	< 0.71	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	2.9	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	ND	mg/L	0.0032	0.011	EPA 335.4	08/31/99	721026460
Iron, dis. as Fe by ICP	0.30	ug/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	ND	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	< 2.1	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	19	ug/L	12	12	SW846 8021	09/01/99	721026460
VOCs (water) by EPA 8021	see attached				SW846	08/27/99	721026460
Base/Neutral/Acid Extraction	yes				8270C		
Semivolatile GC/MS by 8270C	see attached				SW846	08/27/99	721026460

Additional Comments: 2,4-Dimethylphenol and 4-methylphenol had low recoveries in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

Client: Dames & Moore
Attn: Dave Trianior
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

WIS. LAB CERT. NO. 721026460

PAGE: 8 NLS PROJECT# 49882
NLS CUST# 8098

ANALYTICAL REPORT

Sample ID: MW-11 NLS#: 210381
Ref. Line 8 of COC 39313 Description: MW-11
Collected: 08/24/99 Received: 08/26/99 Reported: 09/24/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	2.0	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	0.017	mg/L	0.0032	0.011	EPA 335.4	08/31/99	721026460
Iron, dis. as Fe by ICP	ND	ug/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	ND	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	< 1.0	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	ND	ug/L	12	12	SW846 8021	09/01/99	721026460
VOCs (water) by EPA 8021	see attached				SW846 3510	08/27/99	721026460
Base/Neutral/Acid Extraction	yes				SW846		
Semivolatile GC/MS by 8270C	see attached				8270C		

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crauden, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

Client:

Dames & Moore
Attn: Dave Tranter
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: MW-10 **NLS#:** 210382
Ref. Line 9 of COC 39313 **Description:** MW-10
Collected: 08/24/99 **Received:** 08/26/99 **Reported:** 09/24/99

Parameter
Arsenic, dis. as As by ICP
Chromium, dis. as Cr by ICP
Copper, dis. as Cu by ICP
Cyanide, tot. (distilled) as CN
Iron, dis. as Fe by ICP
Lead, dis. as Pb by ICP
Nickel, dis. as Ni by ICP
Zinc, dis. as Zn by ICP
VOCs (water) by EPA 8021
Base/Neutral/Acid Extraction
Semi-volatile GC/MS by 8270C

ANALYTICAL REPORT

PAGE: 9

NLS PROJECT# 49882

NLS CUST#

8098

WIS. LAB CERT. NO. 721026460

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	2.9	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	ND	mg/L	0.0032	0.011	EPA 335.4	09/01/99	721026460
Iron, dis. as Fe by ICP	0.0061	mg/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	ND	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	ND	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	< 1.6	ug/L	12	12	SW846 6010	09/21/99	721026460
VOCs (water) by EPA 8021	see attached				SW846 8021	09/03/99	721026460
Base/Neutral/Acid Extraction	yes				SW846 3510	08/27/99	721026460
Semi-volatile GC/MS by 8270C	see attached				SW846 8270C	08/27/99	721026460

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 10 NLS PROJECT# 49882

NLS CUST# 8098

Client: Dames & Moore
Attn: Dave Tranter
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: MW-10A NLS#: 210383
Ref. Line 10 of COC 39313 Description: MW-10A
Collected: 08/24/99 Received: 08/26/99 Reported: 09/24/99

Parameter	Result	Units	LOD	LOG	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	< 5.2	ug/L	4.2	1.5	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	< 0.85	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
Cyanide, tol. (distilled) as CN	ND	mg/L	0.0032	0.011	EPA 335.4	09/01/99	721026460
Iron, dis. as Fe by ICP	< 0.0075	mg/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	< 2.3	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	< 2.2	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	19	ug/L	12	12	SW846 6010	09/21/99	721026460
VOCs (water) by EPA 8021	see attached				SW846 8021	09/01/99	721026460
Base/Neutral/Acid Extraction	yes				SW846 3510	08/27/99	721026460
Semivolatile GC/MS by 8270C	see attached				SW846 8270C	08/28/99	721026460

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 11

NLS PROJECT# 49882

Client:

Dames & Moore
Attn: Dave Triantor
25 Kessel Court
Suite 201
Madison, WI 53711

NLS CUST# 8098

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: MW-6 NLS#: 210384
Ref. Line 11 of COC 39313 Description: MW-6
Collected: 08/24/99 Received: 08/26/99 Reported: 09/24/99

Parameter
Arsenic, dis. as As by ICP
Chromium, dis. as Cr by ICP
Copper, dis. as Cu by ICP
Cyanide, tot. (distilled) as CN
Iron, dis. as Fe by ICP
Lead, dis. as Pb by ICP
Nickel, dis. as Ni by ICP
Zinc, dis. as Zn by ICP
VOCs (water) by EPA 8021
Base/Neutral/Acid Extraction
SemiVolatile GC/MS by 8270C

Result	Units	LOD	LOQ	Method	Analyzed	Lab
ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
1.8	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
9.8	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
< 0.0040	mg/L	0.0032	0.011	EPA 335.4	09/01/99	721026460
< 0.0030	mg/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
< 3.0	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
5.4	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
ND	ug/L	12	12	SW846 6010	09/21/99	721026460
see attached				SW846 8021	09/03/99	721026460
yes attached				SW846 8021	08/27/99	721026460
see attached				SW846 3510	08/28/99	721026460
				8270C		

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 12 NLS PROJECT# 49882

NLS CUST# 8098

Client: Dames & Moore
Attn: Dave Tranter
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: MW-6A NLS#: 210385
Ref. Line 12 of COC 39313 Description: MW-6A
Collected: 08/24/99 Received: 08/26/99 Reported: 09/24/99

Parameter
Arsenic, dis. as As by ICP
Chromium, dis. as Cr by ICP
Copper, dis. as Cu by ICP
Cyanide, tot. (distilled) as CN
Iron, dis. as Fe by ICP
Lead, dis. as Pb by ICP
Nickel, dis. as Ni by ICP
Zinc, dis. as Zn by ICP
VOCs (water) by EPA 8021
Base/Neutral/Acid Extraction
Semi-volatile GC/MS by 8270C

Result	Units	LOD	LOG	Method	Analyzed	Lab
ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
1.7	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
5.6	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
ND	mg/L	0.0032	0.011	EPA 335.4	09/01/99	721026460
ND	mg/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
< 1.7 >	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
3.2	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
16	ug/L	12	12	SW846 6010	09/21/99	721026460
see attached				SW846 8021	09/03/99	721026460
yes				SW846 3510	08/27/99	721026460
see attached				SW846	08/28/99	721026460
				8270C		

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

ANALYTICAL REPORT

WIS. LAB CERT. NO. 721026460

PAGE: 13 NLS PROJECT# 49882

NLS CUST# 8098

Client:
Dames & Moore
Attn: Dave Tranter
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: Trip Blank **NLS#:** 210386
Ref. Line 13 of COC 38913 Description: Trip Blank
Collected: 08/24/99 **Received:** 08/26/99 **Reported:** 09/24/99

Parameter:
VOCs (water) by EPA 8021
Result:
see attached
Units:
LOD:
LOQ:
Method: SW846 8021 09/03/99 721026460
Analyzed Lab:

Sample ID: MW-1 **NLS#:** 210540
Ref. Line 1 of COC 39323 Description: MW-1
Collected: 08/25/99 **Received:** 08/27/99 **Reported:** 09/24/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed Lab
Arsenic, dis. as As by ICP	< 5.4 >	ug/L	4.2	15	SW846 6010	09/21/99 721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SW846 6010	09/21/99 721026460
Copper, dis. as Cu by ICP	ND	ug/L	0.47	1.7	SW846 6010	09/21/99 721026460
Cyanide, tot. (distilled) as CN	ND	mg/L	0.0032	0.011	EPA 335.4	09/01/99 721026460
Iron, dis. as Fe by ICP	0.0083	mg/L	0.0010	0.0035	SW846 6010	09/21/99 721026460
Lead, dis. as Pb by ICP	ND	ug/L	1.4	5.1	SW846 6010	09/21/99 721026460
Nickel, dis. as Ni by ICP	< 1.1 >	ug/L	0.66	2.3	SW846 6010	09/21/99 721026460
Zinc, dis. as Zn by ICP	15.0	ug/L	12	12	SW846 6010	09/21/99 721026460
Base/Neutral/Acid Extraction	yes				SW846	
Semivolatile GC/MS by 8270C	see attached				SW846	09/03/99 721026460

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crauden, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

Client: Dames & Moore
Attn: Dave Tranior
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: MW-2 NLS#: 210541
Ref. Line 2 of COC 39323 Description: MW-2
Collected: 08/25/99 Received: 08/27/99 Reported: 09/24/99

Parameter
Arsenic, dis. as As by ICP
Chromium, dis. as Cr by ICP
Copper, dis. as Cu by ICP
Cyanide, tot. (distilled) as CN
Iron, dis. as Fe by ICP
Lead, dis. as Pb by ICP
Nickel, dis. as Ni by ICP
Zinc, dis. as Zn by ICP
Base/Neutral/Acid Extraction
Semi-volatile GC/MS by 8270C

ANALYTICAL REPORT

WIS. LAB CERT. NO. 721026460
PAGE: 14 NLS PROJECT# 49882
NLS CUST# 8098

Result	Units	LOD	LOQ	Method	Analyzed Lab
< 4.4 >	ug/L	4.2	15	SW846 6010	09/21/99 721026460
ND	ug/L	0.42	1.5	SW846 6010	09/21/99 721026460
ND	ug/L	0.47	1.7	SW846 6010	09/21/99 721026460
0.11	mg/L	0.0032	0.011	EPA 335.4	09/01/99 721026460
39	mg/L	0.0010	0.0035	SW846 6010	09/21/99 721026460
< 1.9 >	ug/L	1.4	5.1	SW846 6010	09/21/99 721026460
< 0.95 >	ug/L	0.66	2.3	SW846 6010	09/21/99 721026460
140	ug/L	12	12	SW846 3510	08/28/99 721026460
Yes				SW846	09/04/99 721026460
see attached				8270C	

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranford, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 15 NLS PROJECT# 49882

NLS CUST# 8098

Client: Dames & Moore
Attn: Dave Tranjor
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: MW-2 Dup NLS#: 210542
Rel. Line 2 of COC 39323 Description: MW-2 Dup
Collected: 08/25/99 Received: 08/27/99 Reported: 09/24/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	< 7.5 >	ug/L	4.2	15	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	ND	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	0.12	mg/L	0.0032	0.011	EPA 335.4	09/01/99	721026460
Iron, dis. as Fe by ICP	39	mg/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	< 1.8 >	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	ND	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	26	ug/L	12	12	SW846 6010	08/28/99	721026460
Base/Neutral/Acid Extraction	yes				SW846		
Semivolatile GC/MS by 8270C	see attached				8270C	09/04/99	721026460

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Grandon, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 16 NLS PROJECT# 49882

Client: Dames & Moore
Attn: Dave Tranjor

25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: MW-9 NLS#: 210543
Rel. Line 3 of COC 39323 Description: MW-9
Collected: 08/26/99 Received: 08/27/99 Reported: 09/24/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SM846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	< 0.84 >	ug/L	0.42	1.5	SM846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	ND	ug/L	0.47	1.7	SM846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	0.69	mg/L	0.013	0.043	EPA 335.4	09/01/99	721026460
Iron, dis. as Fe by ICP	3.0	mg/L	0.0010	0.0035	SM846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	< 2.3 >	ug/L	1.4	5.1	SM846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	< 2.0 >	ug/L	0.66	2.3	SM846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	ND	ug/L	12	12	SM846 6010	09/21/99	721026460
Base/Neutral/Acid Extraction	Yes				SM846	08/28/99	721026460
Semivolatile GC/MS by 8270C	see attached				8270C	09/11/99	721026460

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate. Naphthalene & 2-methylnaphthalene should be considered estimated values because the concentration exceeds the high end of the calibration curve.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Grandon, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 17 NLS PROJECT# 49882

NLS CUST# 8098

Client: Dames & Moore
Attn: Dave Tranjor
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: MW-9A **NLS#:** 210544
Rel. Line 4 of COC 39323 **Description:** MW-9A
Collected: 08/26/99 **Received:** 08/27/99 **Reported:** 09/24/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	< 0.52	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	0.36	mg/L	0.0064	0.021	EPA 335.4	09/01/99	721026460
Iron, dis. as Fe by ICP	0.17	ug/L	0.0035	0.0035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	< 2.6	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	ND	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	ND	ug/L	12	12	SW846 6010	08/28/99	721026460
Base/Neutral/Acid Extraction	yes				SW846		
Semivolatiles GC/MS by 8270C	see attached				8270C	09/11/99	721026460

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 18 NLS PROJECT# 49882

NLS CUST# 8098

Client: Dames & Moore
Attn: Dave Trianior
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP 05644-088
Project Title: MSN-R-0899-0256

Sample ID: MW-13 NLS# 210545
Rel. Line 5 of COC 38323 Description: MW-13
Collected: 08/26/99 Received: 08/27/99 Reported: 09/24/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	ND	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	0.11	mg/L	0.0032	0.011	EPA 335.4	09/01/99	721026460
Iron, dis. as Fe by ICP	ND	ug/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	0.44	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	ND	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	ND	ug/L	12	12	SW846 3510	08/28/99	721026460
Base/Neutral/Acid Extraction	yes				SW846		
Semivolatile GC/MS by 8270C	see attached				8270C	09/11/99	721026460

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate. Naphthalene concentration should be considered an estimate because the value exceeds the high end of the calibration curve.

Values in brackets represent results greater than the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation".
Results greater than the LOQ are considered to be in the region of "Certain Quantitation".

LOD = Limit of Detection
LOQ = Limit of Quantitation
LOD by Weight Basis NA Not Applicable

ND = Not Detected
tDMB = (mg/kg DMH) / 10000

Reviewed by: Steven R. Culp

Authorized by:
R. T. Krueger
Laboratory Manager

ANALYTICAL RESULTS: VOCs DETECTED BY EPA METHOD (Continued)

Page: 1

Contract: Dames & Moore
Project Description: NEP
Project Title: 05644 008
Northern Lake Service Project Number: 49882

Analyte Name	210374 MW-5		DILUTION FACTOR	LOD ug/L	LOQ ug/L
	ug/L	< 78 >			
Benzene	ND		400	45	150
n-Butylbenzene	ND		400	130	460
sec-Butylbenzene	ND		400	110	370
Isopropylbenzene	ND		400	67	220
p-Isopropyltoluene	ND		400	110	380
Naphthalene	3400		400	91	310
n-Propylbenzene	ND		400	100	360
ortho-Xylene	ND		400	97	310
Toluene	ND		400	66	220
1,2,4-Trimethylbenzene	ND		400	100	350
1,3,5-Trimethylbenzene	ND		400	100	340
meta,para-Xylene	ND		400	190	650
Surrogate Recovery on Dibromofluoromethane = 112 %					
Surrogate Recovery on Toluene-d8 = 112 %					
Surrogate Recovery on 1-Bromo-4-Fluorobenzene = 114 %					

ANALYTICAL RESULTS: VOC #021 List by EPA 8260 (Column 2)

Page: 2

Customer: Dames & Moore
Project Description: NSP Project Title: 05644 DRH
Northern Lake Service Project Number: 49882

Analyte Name	210487 MM 10 ug/L	DILUTION FACTOR	LOD ug/L	LCO ug/L
Benzene	ND	1	0.11	0.38
n-Butylbenzene	ND	1	0.13	1.1
m-Butylbenzene	ND	1	0.17	0.74
Isopropylbenzene	ND	1	0.17	0.74
p-Isopropyltoluene	ND	1	0.27	0.74
Naphthalene	< 0.07	1	0.21	0.78
n-Propylbenzene	ND	1	0.26	0.90
ortho-Xylene	ND	1	0.24	0.84
Toluene	ND	1	0.16	0.54
1,2,4-Trimethylbenzene	ND	1	0.25	0.88
1,3,5-Trimethylbenzene	ND	1	0.25	0.86
meta,para-Xylene	ND	1	0.47	1.6
Surrogate Recovery on Dibromofluoromethane = 102 %				
Surrogate Recovery on Toluene-d8 = 100 %				
Surrogate Recovery on 1-Bromo-4-Fluorobenzene = 104 %				

ANALYTICAL RESULTS: VOC 8021 List by EPA Method 8210-2

Page: 1

Customer: James & Moore
Project Description: NSP Project Title: 05644 088
Northern Lake Service Project Number: 49882

Analyte Name	210004 MW G	CONC	DILUTION	1000	1000
	ug/L	ug/L	Factor	ug/L	ug/L
Benzene	ND	0.11	1	0.11	0.38
n-Butylbenzene	ND	0.11	1	0.11	1.1
sec-Butylbenzene	ND	0.27	1	0.27	0.94
Isopropylbenzene	ND	0.17	1	0.17	0.52
p-Isopropyltoluene	ND	0.27	1	0.27	0.94
Naphthalene	ND	0.24	1	0.24	0.78
n-Propylbenzene	ND	0.26	1	0.26	0.90
ortho-Xylene	ND	0.24	1	0.24	0.84
Toluene	ND	0.16	1	0.16	0.54
1,2,4-Trimethylbenzene	ND	0.25	1	0.25	0.88
1,3,5-Trimethylbenzene	ND	0.25	1	0.25	0.88
meta,pata-Xylene	ND	0.47	1	0.47	1.6

Surrogate Recovery on Dibromofluoromethane = 113 %
Surrogate Recovery on Toluene-d8 = 107 %
Surrogate Recovery on 1-Bromo-4-Fluorobenzene = 112 %

ANALYTICAL RESULTS: VOC BODI List by EPA READ (Continued)

Page: 4

Customer: James & Moore
Project Description: NSP Project Title: 0564 OHM
Northern Lake Service Project Number: 49882

Analyte	210 MB, MW, μ A	DILUTION	1400	1400
Name	μ g/L	FACTOR	μ g/L	μ g/L
Benzene	ND	1	0.11	0.18
n-Butylbenzene	ND	1	0.33	1.1
sec-Butylbenzene	ND	1	0.27	0.94
Isopropylbenzene	ND	1	0.17	0.56
p-Isopropyltoluene	ND	1	0.27	0.94
Naphthalene	ND	1	0.23	0.78
n-Propylbenzene	ND	1	0.26	0.90
ortho-Xylene	ND	1	0.24	0.84
Toluene	ND	1	0.16	0.54
1,2,4-Trimethylbenzene	ND	1	0.25	0.88
1,3,5-Trimethylbenzene	ND	1	0.25	0.86
meta-Xylene	ND	1	0.47	1.6
Surrogate Recovery on Dichloromethane - 110 %				
Surrogate Recovery on Toluene CB - 108 %				
Surrogate Recovery on 1-Bromo-4-Fluorobenzene - 112 %				

ANALYTICAL RESULTS: VOC 8021 List by EPA 8260 (Carbon 2)

Page 1

Customer: Brown & Moore Project Title: 0044 000
Project Location: NEP Northern Lake Service Project Number: 40802

Analyte Name	210186 Trip Blank ug/L	CONCENTRATION FMCT08	LAB ug/L	LAB ug/L
n-Butylbenzene	ND	1	0.33	1.1
sec-Butylbenzene	ND	1	0.37	0.94
1,1-Dichloropropene	ND	1	0.12	0.39
Isopropylbenzene	ND	1	0.17	0.56
p-Isopropyltoluene	ND	1	0.27	0.94
Naphthalene	ND	1	0.23	0.78
n-Propylbenzene	ND	1	0.26	0.90
ortho-Xylene	ND	1	0.24	0.84
Toluene	ND	1	0.16	0.54
1,2,4-Trimethylbenzene	ND	1	0.25	0.88
1,3,5-Trimethylbenzene	ND	1	0.47	1.6
meta,para-Xylene				
Surrogate Recovery on Dibromofluoromethane = 107 %				
Surrogate Recovery on Toluene-d8 = 105 %				
Surrogate Recovery on 1-Bromo-4-Fluorobenzene = 110 %				

ANALYTICAL RESULTS WATER BY EPA 8071 WATER (X10)

Page: 1

Customer: James A. Moore
 Project Description: NSP Project Title: 05644 008
 Northern Lake Service Project Number: 49882

Analyte	210375 MW 5A	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
benzene	14000	1000	240	840
n Butylbenzene	< 870 >	1000	340	1200
sec Butylbenzene	ND	1000	280	960
Isopropylbenzene	ND	1000	250	870
p Isopropyltoluene	ND	1000	560	1900
Naphthalene	3200	1000	250	860
n-Propylbenzene	ND	1000	270	930
ortho-Xylene/Styrene	ND	1000	470	1600
Toluene	1800	1000	240	820
1,2,4-Trimethylbenzene	ND	1000	270	920
1,3,5-Trimethylbenzene	ND	1000	270	930
meta,para-Xylene	< 670 >	1000	500	1700
Surrogate Recovery on 2-Bromochlorobenzene-PID = 100 %				
Surrogate Recovery on 2-Bromochlorobenzene-HECD = 101 %				

Customer: James & Moore
 Project Description: NSP Project Title: 05644-008
 Northern Lake Service Project Number: 49882

Analyte Name	210376 MW-SA Dup ug/L	DILUTION FACTOR	LOD ug/L	LAQ ug/L
Benzene	14000	1000	240	840
n-Butylbenzene	< 1200 >	1000	340	1200
sec-Butylbenzene	ND	1000	280	960
Isopropylbenzene	ND	1000	250	870
p-Isopropyltoluene	ND	1000	560	1900
o-Methyltoluene	1100	1000	250	800
n-Propylbenzene	ND	1000	270	910
ortho-Xylene/Styrene	ND	1000	470	1600
Toluene	1800	1000	240	820
1,2,4-Trimethylbenzene	ND	1000	270	920
1,3,5-Trimethylbenzene	ND	1000	270	930
meta-Para-Xylene	< 720 >	1000	500	1700

Surrogate Recovery on 2-Bromochlorobenzene: PID = 99.0 %
 Surrogate Recovery on 2-Bromochlorobenzene: HECD = 98.0 %

ANALYTICAL RESULTS: WATER by EPA 8001 Method (XXII)

Customer: James & Moore
 Project Description: NSP Project Title: 05644 018
 Northern Lake Service Project Number: 49882

Analyte	210377 MW 5B ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Benzene	ND	2000	480	1700
n-Butylbenzene	ND	2000	680	2300
sec-butylbenzene	ND	2000	560	1900
Isopropylbenzene	ND	2000	500	1700
p-Isopropyltoluene	ND	2000	1100	3900
Naphthalene	3100	2000	500	1700
n-Propylbenzene	ND	2000	540	1900
ortho-Xylene/Styrene	ND	2000	950	3300
Toluene	5100	2000	480	1600
1,2,4 Trimethylbenzene	ND	2000	530	1800
1,1,1 Trimethylbenzene	ND	2000	540	1900
methylstyrene	ND	2000	1000	3400
Surrogate Recovery on 2 Bromochlorobenzene: PID = 101 %				
Surrogate Recovery on 2 Bromochlorobenzene: HSCD = 100 %				

ANALYTICAL RESULTS WORKS by EPA 8001 WATER (030)

Page: 4

Customer: Lumber & More
 Project Description: NSP
 Project Title: 01644 000
 Northern Lake Service Project Number: 49882

Analyte	210378 MW 5C	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
Benzene	1.7	1	0.24	0.84
n-Butylbenzene	ND	1	0.34	1.2
sec-Butylbenzene	ND	1	0.28	0.96
Isopropylbenzene	ND	1	0.25	0.87
p-Isopropyltoluene	ND	1	0.56	1.9
Naphthalene	0.94	1	0.25	0.86
n-Propylbenzene	ND	1	0.27	0.93
ortho-Xylene/Styrene	ND	1	0.47	1.6
Toluene	< 0.50	1	0.24	0.82
1,2,4-Trimethylbenzene	ND	1	0.27	0.92
1,3,5-Trimethylbenzene	ND	1	0.27	0.93
meta,para Xylene	ND	1	0.27	1.7
Surrogate Recovery on 2-Bromochlorobenzene- PID = 101 %				
Surrogate Recovery on 2-Bromochlorobenzene- HECD = 102 %				

ANALYTICAL RESULTS: VOC'S by ERM 6021 WATER (CMH)

Page: 5

Customer: Dames & Moore
Project Description: NSP
Northern Lake Service Project Number: 49882

Project Title: 01644-088

Analyte	210179 MW 8	DILUTION	LAB	170
Name	ug/L	FACTOR	ug/L	ug/L
Benzene	ND	1	0.24	0.84
n-Butylbenzene	ND	1	0.34	1.2
sec-Butylbenzene	ND	1	0.28	0.96
Isopropylbenzene	ND	1	0.25	0.87
p-Isopropyltoluene	ND	1	0.56	1.9
Naphthalene	ND	1	0.25	0.86
n-Propylbenzene	ND	1	0.27	0.93
ortho-Xylene/Styrene	ND	1	0.47	1.6
Toluene	ND	1	0.24	0.82
1,2,4-Trimethylbenzene	ND	1	0.27	0.92
1,3,5-Trimethylbenzene	ND	1	0.27	0.93
meta,para-Xylene	ND	1	0.50	1.7

Surrogate Recovery on 2-Bromochlorobenzene-PID = 102 %

Surrogate Recovery on 2-Bromochlorobenzene-HECD = 103 %

ANALYTICAL RESULTS: WATER by EPA 8071 WATER (CRM)

Page: 6

Customer: Dames & Moore
Project Description: NSP Project Title: 05644-088
Northern Lake Service Project Number: 49882

Analyte	210380 MW BA		DILUTION FACTOR	LOD		LOQ
	ug/L	ug/L		ug/L	ug/L	
Benzene	16000	480	2000	480	1700	
n-Butylbenzene	ND	680	2000	680	2300	
sec-Butylbenzene	ND	560	2000	560	1900	
Isopropylbenzene	ND	500	2000	500	1700	
p-Isopropyltoluene	ND	1100	2000	1100	3900	
Napthalene	ND	500	2000	500	1700	
n-Propylbenzene	ND	540	2000	540	1900	
ortho-Xylene/Styrene	ND	950	2000	950	3300	
Toluene	< 570 >	480	2000	480	1600	
1,2,4-Trimethylbenzene	ND	530	2000	530	1800	
1,3,5-Trimethylbenzene	ND	540	2000	540	1900	
meta-Para-Xylene	ND	1000	2000		3400	

Surrogate Recovery on 2-Bromochlorobenzene-PID = 103 %
Surrogate Recovery on 2-Bromochlorobenzene-HECD = 102 %

ANALYTICAL RESULTS: VOL'S by EPA 8001 Method (X10)

Page: 7

Customer: Dames & Moore
Project Description: NSP Project Title: 05644-008
Northern Lake Service Project Number: 49882

Analyte	210181 MW-11			
Name	ug/L	DILUTION	100	100
		FACTOR	ug/L	ug/L
Benzene	ND	1	0.24	0.84
n-Butylbenzene	ND	1	0.34	1.2
sec-Butylbenzene	ND	1	0.28	0.96
Isopropylbenzene	ND	1	0.25	0.87
p-Isopropyltoluene	ND	1	0.56	1.9
Naphthalene	ND	1	0.25	0.86
n-Propylbenzene	ND	1	0.27	0.93
ortho-Xylene/Styrene	ND	1	0.47	1.6
Toluene	ND	1	0.24	0.82
1,2,4-Trimethylbenzene	ND	1	0.27	0.92
1,1,1-Trimethylbenzene	ND	1	0.27	0.93
m,p-Xylene	ND	1	0.50	1.7

Surrogate Recovery on 2-Bromochlorobenzene-PID = 99.0 %
Surrogate Recovery on 2-Bromochlorobenzene-IECD = 102 %

ADMINISTRATIVE INFORMATION

Page: 11

Date: 03/01/00

Customer: Bureau of Reclamation
Project Identification: RSP
Project Title: 05644 008
Northern Lake Service Project Number: 49882

Analyte Name	210183 MW 10A	DILUTION FACTOR	LOD	LOQ
	ug/L		ug/L	ug/L
Benzene	ND	1	0.24	0.64
n-Butylbenzene	ND	1	0.34	1.2
sec-Butylbenzene	ND	1	0.28	0.96
Isopropylbenzene	ND	1	0.25	0.67
p-Isopropyltoluene	ND	1	0.56	1.9
Naphthalene	ND	1	0.25	0.86
n-Propylbenzene	ND	1	0.27	0.93
ortho-Xylene/Styrene	ND	1	0.47	1.6
Toluene	ND	1	0.24	0.82
1,2,4-Trimethylbenzene	ND	1	0.27	0.92
1,3,5-Trimethylbenzene	ND	1	0.27	0.93
meta-para-Xylene	ND	1	0.27	0.93
Surrogate Recovery on 2-Bromochlorobenzene-PID = 103 %	ND	1	0.50	1.7
Surrogate Recovery on 2-Bromochlorobenzene-HECD = 104 %	ND	1	0.50	1.7

Customer: James & Moore
Project Description: NSF 05644-088 Project Title: MSN R 0899-0256
Northern Lake Service Project Number: 49882

Analyte	210374 MW 5	DILUTION	100	100
Name	ug/L	FACTOR	ug/L	ug/L
Acenaphthene	230	10.42	14	47
Acenaphthylene	ND	10.42	12	39
Anthracene	< 31 >	10.42	7.9	21
Benzo[a]anthracene	ND	10.42	13	42
Benzo[a]pyrene	ND	10.42	6.7	21
Benzo[b]fluoranthene	ND	10.42	12	41
Benzo[g,h,i]perylene	ND	10.42	14	46
Benzo[k]fluoranthene	ND	10.42	11	37
Butylbenzylphthalate	ND	10.42	7.1	23
Chrysene	ND	10.42	17	57
Di-n-butylphthalate	ND	10.42	7.2	23
Dibenz[a,h]anthracene	ND	10.42	12	110
2,4-Dimethylphenol	39	10.42	7.0	23
Fluoranthene	ND	10.42	11	38
Fluorene	ND	10.42	7.2	23
Indeno[1,2,3-cd]pyrene	250	10.42	15	50
2-Methylnaphthalene	ND	10.42	14	46
2-Methylnaphthol	ND	10.42	16	52
3,4-Methylnaphthol	1900	10.42	16	54
Naphthalene	120	10.42	6.8	22
Phenanthrene	ND	10.42	7.9	26
Pyrene	< 31 >	10.42	13	45
Analyte	210375 MW-5A	DILUTION	100	100
Name	ug/L	FACTOR	ug/L	ug/L
Acenaphthene	22	1.01	1.4	4.5
Acenaphthylene	15	1.01	1.4	4.6
Anthracene	< 1.8 >	1.01	1.2	1.8
Benzo[a]anthracene	ND	1.01	0.77	2.1
Benzo[a]pyrene	ND	1.01	1.2	4.1
Benzo[b]fluoranthene	ND	1.01	0.65	2.1
Benzo[g,h,i]perylene	ND	1.01	1.2	3.9
Benzo[k]fluoranthene	ND	1.01	1.3	4.4
Butylbenzylphthalate	ND	1.01	1.1	3.6
Chrysene	ND	1.01	0.69	2.2
Di-n-butylphthalate	ND	1.01	1.7	5.5
Dibenz[a,h]anthracene	ND	1.01	0.70	2.2
2,4-Dimethylphenol	600	10.1	31	100
Fluoranthene	< 1.5 >	1.01	0.68	2.2
Fluorene	ND	1.01	1.1	3.7
Indeno[1,2,3-cd]pyrene	ND	1.01	0.70	2.2
2-Methylnaphthalene	200	10.1	15	49
2-Methylnaphthol	180	10.1	13	44
3,4-Methylnaphthol	120	10.1	15	51
Naphthalene	1900	10.1	16	52
Phenanthrene	7.2	1.01	0.66	2.1
Pyrene	ND	1.01	0.77	2.6

Sutrogate Recovery on 2-Fluorophenol = 54.0 %
Sutrogate Recovery on Phenol d5 = 39.7 %
Sutrogate Recovery on Nitrobenzene d5 = 167 %
Sutrogate Recovery on 2-Fluorobiphenyl = 77.4 %
Sutrogate Recovery on 2,4,6-Tribromophenol = 80.1 %
Sutrogate Recovery on Terphenyl d14 = 72.9 %

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C

Page: 2

Customer: Hansen & Moore
 Project Description: NSP 05644 URB Project Title: MSN R 0899 0256
 Northern Lake Service Project Number: 49882

Analyte Name	210375 MW-5A ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Analyte Name	210376 MW-5A Dup ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Acenaphthene	ND	1.02	1.4	4.6
Acenaphthylene	16	1.02	1.4	4.6
Anthracene	< 1.6 >	1.02	1.2	3.8
Benzo[a]anthracene	ND	1.02	0.78	2.1
Benzo[a]pyrene	ND	1.02	1.2	4.1
Benzo[b]fluoranthene	ND	1.02	0.65	2.1
Benzo[g,h,i]perylene	ND	1.02	1.2	4.0
Benzo[k]fluoranthene	ND	1.02	1.3	4.5
Butylbenzylphthalate	ND	1.02	0.69	2.2
Chrysene	ND	1.02	1.7	5.6
Di-n-butylphthalate	ND	1.02	0.70	2.2
Dibenz[a,h]anthracene	550	10.2	31	100
2,4-Dimethylphenol	< 1.6 >	1.02	0.68	2.2
Fluoranthene	ND	1.02	1.1	3.7
Indeno[1,2,3-cd]pyrene	ND	1.02	0.70	2.2
2-Methylnaphthalene	170	10.2	15	49
2-Methylphenol	210	10.2	13	45
3,4-Methylphenol	140	10.2	15	51
Naphthalene	1700	10.2	16	51
Phenanthrene	7.2	1.02	0.66	2.1
Phenol	8.3	1.02	0.78	2.6
Pyrene	ND	1.02	1.3	4.4
Surrogate Recovery on 2-Fluorophenol = 58.6 %				
Surrogate Recovery on Phenol-d5 = 39.7 %				
Surrogate Recovery on Nitrobenzene-d5 = 173 %				
Surrogate Recovery on 2-Fluorobiphenyl = 79.7 %				
Surrogate Recovery on 2,4,6-Tribromophenol = 80.9 %				
Surrogate Recovery on Terphenyl-d14 = 76.9 %				

ANALYTICAL REPORT: Semi-Volatile Organic Compounds by EPA METHOD

Page: 3

Customer: James & Moore
Project Description: MSP 05644 088 Project Title: MCN R-0899 0256
Northern Lake Service Project Number: 49882

Analyte	210377 MW 5B	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Name	ug/L			
Acenaphthene	ND	10.2	14	46
Acenaphthylene	ND	10.2	14	46
Anthracene	ND	10.2	12	38
Benzo[a]anthracene	ND	10.2	7.8	21
Benzo[a]pyrene	ND	10.2	12	41
Benzo[b]fluoranthene	ND	10.2	6.5	21
Benzo[g,h,i]perylene	ND	10.2	12	40
Benzo[k]fluoranthene	ND	10.2	13	45
Butylbenzylphthalate	ND	10.2	11	36
Chrysene	ND	10.2	6.9	22
Di-n-butylphthalate	ND	10.2	17	56
Dibenz[a,h]anthracene	ND	10.2	7.0	22
2,4-Dimethylphenol	2900	10.2	310	1000
Fluoranthene	ND	10.2	6.8	22
Indeno[1,2,3-cd]pyrene	ND	10.2	11	37
2-Methylnaphthalene	ND	10.2	7.0	22
2-Methylphenol	3100	10.2	15	49
3,4-Methylphenol	3900	10.2	130	450
Naphthalene	390	10.2	150	510
Phenanthrene	ND	10.2	16	53
Phenol	2000	10.2	6.6	21
Pyrene	ND	10.2	78	260
			13	44
Analyte	210378 MW 5C	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Name	ug/L			
Acenaphthene	ND	1.03	1.4	4.6
Acenaphthylene	ND	1.03	1.4	4.6
Anthracene	ND	1.03	1.2	3.9
Benzo[a]anthracene	ND	1.03	0.78	2.1
Benzo[a]pyrene	ND	1.03	1.2	4.2
Benzo[b]fluoranthene	ND	1.03	0.66	2.1
Benzo[k]fluoranthene	ND	1.03	1.7	4.0
Butylbenzylphthalate	ND	1.03	1.1	4.5
Chrysene	ND	1.03	1.1	3.6
Di-n-butylphthalate	ND	1.03	0.71	2.3
Dibenz[a,h]anthracene	ND	1.03	3.2	11
2,4-Dimethylphenol	ND	1.03	0.69	2.2
Fluoranthene	ND	1.03	1.1	3.7
Fluorene	ND	1.03	0.71	2.3
Indeno[1,2,3-cd]pyrene	ND	1.03	1.5	5.0
2-Methylnaphthalene	ND	1.03	1.3	4.5
2-Methylphenol	ND	1.03	1.5	5.2
3,4-Methylphenol	ND	1.03	1.6	5.3
Naphthalene	ND	1.03	0.67	2.1
Phenanthrene	ND	1.03	0.78	2.6
Phenol	ND	1.03	1.3	4.4
Pyrene	ND	1.03	1.3	4.4

Surrogate Recovery on 2-Fluorophenol = 49.2 %
Surrogate Recovery on Phenol-d5 = 34.7 %
Surrogate Recovery on Nitrobenzene-d5 = 67.8 %
Surrogate Recovery on 2-Fluorobiphenyl = 73.8 %
Surrogate Recovery on 2,4,6-Trichlorophenol = 71.4 %
Surrogate Recovery on Terphenyl-d14 = 78.8 %

Customer: James & Moore
Project Description: NSP 03644 008 Project Title: MSN R 0899 0256
Northern Lake Service Project Number: 49882

Analyte Name	210378 MW 5C ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L
210379 MW 8 ug/L				
Acenaphthene	ND	1.27	1.7	5.7
Acenaphthylene	ND	1.27	1.7	5.7
Anthracene	ND	1.27	1.5	4.8
Benzo[a]anthracene	ND	1.27	0.97	2.6
Benzo[a]pyrene	ND	1.27	0.81	5.1
Benzo[b]fluoranthene	ND	1.27	1.5	2.6
Benzo[g,h,i]perylene	ND	1.27	1.7	5.0
Benzo[k]fluoranthene	ND	1.27	1.3	5.6
Butylbenzylphthalate	ND	1.27	0.86	4.5
Chrysene	ND	1.27	2.1	2.8
Dibenz[a,h]anthracene	ND	1.27	0.08	6.9
Dibenz[a,h]anthracene	ND	1.27	1.9	2.8
2,4-Dimethylphenol	ND	1.27	0.85	1.1
Fluoranthene	ND	1.27	1.4	2.7
Fluorene	ND	1.27	0.88	4.6
Indeno[1,2,3-cd]pyrene	ND	1.27	1.8	2.8
2-Methylnaphthalene	ND	1.27	1.7	6.1
3-Methylphenol	ND	1.27	1.9	5.6
3,4-Methylphenol	ND	1.27	2.0	6.4
Naphthalene	ND	1.27	0.83	6.5
Phenanthrene	ND	1.27	0.97	2.6
Phenol	ND	1.27	1.6	3.2
Pyrene	ND	1.27	1.6	5.5
Surrogate Recovery on 2-Fluorophenol = 60.1 %				
Surrogate Recovery on Phenol d5 = 42.8 %				
Surrogate Recovery on Nitrobenzene-d5 = 81.9 %				
Surrogate Recovery on 2-Fluorobiphenyl = 83.9 %				
Surrogate Recovery on 2,4,6-Tribromophenol = 82.3 %				
Surrogate Recovery on Terphenyl d14 = 85.3 %				

ANALYTICAL RESULTS Semi Volatile Organic Compounds by EPA 8270C

Page: 5

Customer: Dumas & Moore
 Project Description: NSP 05644 088 Project Title: MCN R 0899 0256
 Northern Lake Service Project Number: 49882

Analyte	210380 PM 0A	DILUTION	1200	1200
Unit	ug/L	FACTOR	ug/L	ug/L
Acenaphthene	ND	1.16	1.6	5.2
Acenaphthylene	ND	1.16	1.6	5.2
Anthracene	ND	1.16	1.4	4.3
Benzo[a]anthracene	ND	1.16	0.88	2.4
Benzo[a]pyrene	ND	1.16	1.4	4.7
Benzo[b]fluoranthene	ND	1.16	0.74	2.4
Benzo[g,h,i]perylene	ND	1.16	1.4	4.5
Benzo[k]fluoranthene	ND	1.16	1.5	5.1
Buylbenzylphtalate	ND	1.16	1.2	4.1
Chrysene	ND	1.16	0.79	2.5
Di-n-butylphtalate	ND	1.16	1.9	6.3
Dibenz[a,h]anthracene	ND	1.16	0.80	2.5
2,4-Dimethylphenol	210	11.6	36	120
Fluoranthene	ND	1.16	0.78	2.5
Indeno[1,2,3-cd]pyrene	ND	1.16	1.3	4.2
2-Methylnaphthalene	ND	1.16	0.80	2.5
2-Methylphenol	210	11.6	15	51
3,4-Methylphenol	210	11.6	17	58
Naphthalene	110	11.6	18	60
Phenanthrene	ND	1.16	0.75	2.4
Phenol	120	11.6	8.8	29
Pyrene	ND	1.16	1.5	5.0
Surrogate Recovery on 2-Fluorophenol = 54.8 %				
Surrogate Recovery on Phenol-d5 = 41.6 %				
Surrogate Recovery on Nitrobenzene-d5 = 80.8 %				
Surrogate Recovery on 2-Fluorobiphenyl = 79.0 %				
Surrogate Recovery on 2,4,6-Trichlorophenol = 80.5 %				
Surrogate Recovery on Terphenyl-d14 = 74.8 %				

Customer: Dumas & Moore
 Project Description: NSP 0-644-008 Project Title: MSN R-0899 0256
 Northern Lake Service Project Number: 49882

Analyte	210381 MW-11			
Name	ug/L	DILUTION	LOD	LOQ
Acenaphthene	ND	1	1.3	4.5
Acenaphthylene	ND	1	1.4	4.5
Anthracene	ND	1	1.2	1.7
Benzo[a]anthracene	ND	1	0.76	2.1
Benzo[a]pyrene	ND	1	1.2	4.0
Benzo[b]fluoranthene	ND	1	0.64	2.1
Benzo[g,h,i]perylene	ND	1	1.2	3.9
Benzo[k]fluoranthene	ND	1	1.3	4.4
Butylbenzylphthalate	ND	1	1.1	3.5
Chrysene	ND	1	0.68	2.2
Di-n-butylphthalate	ND	1	1.6	5.5
Dibenzof[a,h]anthracene	ND	1	0.69	2.2
2,4-Dimethylphenol	ND	1	3.1	10
Fluoranthene	ND	1	0.67	2.2
Fluorene	ND	1	1.1	3.6
Indeno[1,2,3-cd]pyrene	ND	1	0.69	2.2
2-Methylnaphthalene	ND	1	1.4	4.8
2-Methylphenol	ND	1	1.3	4.4
3 & 4-Methylphenol	ND	1	1.5	5.0
Naphthalene	ND	1	1.5	5.2
Phenanthrene	ND	1	0.65	2.1
Phenol	ND	1	0.76	2.5
Pyrene	ND	1	1.3	4.3
Surrogate Recovery on 2-Fluorophenol = 55.1 %				
Surrogate Recovery on Phenol d5 = 13.3 %				
Surrogate Recovery on Nitrobenzene d5 = 81.1 %				
Surrogate Recovery on 2-Fluorobiphenyl = 81.6 %				
Surrogate Recovery on 2,4,6-Tribromophenol = 78.9 %				
Surrogate Recovery on Terphenyl-d14 = 90.2 %				

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C

Page: 7

Customer: Dames & Moore
 Project Description: MSP 05644-088 Project Title: MSN-R-0899-0256
 Northern Lake Service Project Number: 49882

Analyte	210382 MW 10 ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Name	ND	1	1.3	4.5
Acenaphthene	ND	1	1.4	4.5
Acenaphthylene	ND	1	1.2	3.7
Anthracene	ND	1	0.76	2.1
Benzo[a]anthracene	ND	1	1.2	4.0
Benzo[a]pyrene	ND	1	0.64	2.1
Benzo[b]fluoranthene	ND	1	1.2	3.9
Benzo[g,h,i]perylene	ND	1	1.3	4.4
Benzo[k]fluoranthene	ND	1	1.1	3.5
Butylbenzylphtalate	ND	1	0.68	2.2
Fluorene	ND	1	1.6	5.5
Di n butylphthalate	ND	1	0.69	2.2
Dibenzofa, b]anthracene	ND	1	3.1	10
2,4-Dimethylphenol	< 0.99 >	1	0.67	2.2
Fluoranthene	ND	1	1.1	3.6
Indeno[1,2,3-cd]pyrene	ND	1	0.69	2.2
2-Methylnaphthalene	ND	1	1.4	4.8
2-Methylphenol	ND	1	1.3	4.4
3 & 4-Methylphenol	ND	1	1.5	5.0
Naphthalene	ND	1	1.5	5.2
Phenanthrene	ND	1	0.65	2.1
Phenol	ND	1	0.76	2.5
Pyrene	ND	1	1.3	4.3
Surrogate Recovery on 2-Fluorophenol = 55.4 %				
Surrogate Recovery on Phenol-d5 = 33.8 %				
Surrogate Recovery on Nitrobenzene-d5 = 78.4 %				
Surrogate Recovery on 2-Fluorobiphenyl = 79.3 %				
Surrogate Recovery on 2,4,6-Tribromophenol = 76.9 %				
Surrogate Recovery on Terphenyl-d14 = 89.5 %				

Customer: Dames & Moore
 Project Description: MSP 05644-088 Project Title: MSN-R 0899-0256
 Northern Lake Service Project Number: 49882

Analyte	210183 MW 10A	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
Acenaphthene	ND	1	1.3	4.5
Acenaphthylene	ND	1	1.4	4.5
Anthracene	ND	1	1.2	3.7
Benzo[a]anthracene	ND	1	0.76	2.1
Benzo[a]pyrene	ND	1	1.2	4.0
Benzo[b]fluoranthene	ND	1	0.64	2.1
Benzo[g,h,i]perylene	ND	1	1.2	3.9
Benzo[k]fluoranthene	ND	1	1.3	4.4
Butylbenzophthalate	ND	1	1.1	3.5
Chrysene	ND	1	0.68	2.2
Di-n-butylphthalate	ND	1	1.6	5.5
Dibenz[a,h]anthracene	ND	1	0.69	2.2
2,4-Dimethylphenol	ND	1	3.1	10
Fluoranthene	ND	1	0.67	2.2
Indeno[1,2,3-cd]pyrene	ND	1	1.1	3.6
2-Methylnaphthalene	ND	1	0.69	2.2
3 & 4-Methylphenol	ND	1	1.4	4.8
Naphthalene	ND	1	1.3	4.4
Phenanthrene	ND	1	1.5	5.0
Phenol	ND	1	1.5	5.2
Pyrene	ND	1	0.65	2.1
Surrogate Recovery on 2-Fluorophenol = 43.8 %			0.76	2.5
Surrogate Recovery on Phenol-d5 = 26.4 %			1.3	4.3
Surrogate Recovery on Nitrobenzene-d5 = 81.2 %				
Surrogate Recovery on 2-Fluorobiphenyl = 79.4 %				
Surrogate Recovery on 2,4,6-Trichlorophenol = 78.6 %				
Surrogate Recovery on Terphenyl d14 = 92.8 %				

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C

Page: 9

Customer: Dames & Moore
 Project Description: NCP 05/04/00 Project Title: MCH R 08/99 02/00
 Northern Lake Superior Project Number: 49882

Analyte Name	210384 MW 6 ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Acenaphthene	ND	1	1.3	4.5
Acenaphthylene	ND	1	1.4	4.5
Anthracene	ND	1	1.2	3.7
Benzo[a]anthracene	ND	1	0.76	2.1
Benzo[a]pyrene	ND	1	1.2	4.0
Benzo[b]fluoranthene	ND	1	0.64	2.1
Benzo[g,h,i]perylene	ND	1	1.2	3.9
Benzo[k]fluoranthene	ND	1	1.3	4.4
Butylbenzylphthalate	ND	1	1.1	3.5
Chrysene	ND	1	0.68	2.2
Di-n-butylphthalate	ND	1	1.6	5.5
Dibenz[a,h]anthracene	ND	1	0.69	2.2
2,4-Dimethylphenol	ND	1	3.1	10
Fluoranthene	ND	1	0.67	2.2
Fluorene	ND	1	1.1	3.6
Indeno[1,2,3-cd]pyrene	ND	1	0.69	2.2
2-Methylnaphthalene	ND	1	1.4	4.8
2-Methylphenol	ND	1	1.3	4.4
3,4,4-Methylphenol	ND	1	1.5	5.0
Naphthalene	ND	1	1.5	5.2
Phenanthrene	ND	1	0.65	2.1
Phenol	ND	1	0.76	2.5
Pyrene	ND	1	1.3	4.3
Surrogate Recovery on 2-Fluorophenol - 34.3 %				
Surrogate Recovery on Phenol-d5 - 15.2 %				
Surrogate Recovery on Nitrobenzene-d5 - 70.2 %				
Surrogate Recovery on 2-Fluorobiphenyl - 72.8 %				
Surrogate Recovery on 2,4,6-Tribromophenol - 74.5 %				
Surrogate Recovery on Terphenyl-d14 - 84.9 %				

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C

Page: 10

Customer: Dams & Moore
 Project Description: NSP 05644-088 Project Title: MSN R-0899 0256
 Northern Lake Service Project Number: 49882

Analyte	210385 MW-6A ug/L	DILUTION FACTOR	LOD ug/L	100 ug/L
Acetophenone	ND	1	1.3	4.5
Acenaphthylene	ND	1	1.4	4.5
Acenaphthylene	ND	1	1.2	1.7
Anthracene	< 1.2	1	0.76	2.1
benzo[a]pyrene	ND	1	1.2	4.0
benzo[b]fluoranthene	< 0.82	1	0.64	2.1
benzo[k]fluoranthene	ND	1	1.2	3.9
benzo[ghi]perylene	ND	1	1.3	4.4
Butylbenzylphthalate	ND	1	1.1	3.5
Chrysene	< 1.9	1	1.6	5.5
Di-n-butylphthalate	ND	1	0.69	2.2
Dibenzol, h]anthracene	ND	1	3.1	10
2,4-Dimethylphenol	< 1.2	1	0.67	2.2
Fluoranthene	ND	1	1.1	3.6
Indeno[1,2,3-cd]pyrene	ND	1	0.69	2.2
2-Methylnaphthalene	ND	1	1.4	4.8
3 & 4 Methylphenol	ND	1	1.3	4.4
Naphthalene	ND	1	1.5	5.2
Phenanthrene	< 0.65	1	0.65	2.1
Phenol	ND	1	0.76	2.5
Pyrene	ND	1	1.3	4.3
Surogate Recovery on 2-Fluorophenol = 53.7 %				
Surogate Recovery on Phenol d5 = 33.8 %				
Surogate Recovery on Nitrobenzene d5 = 76.3 %				
Surogate Recovery on 2-Fluorobiphenyl = 79.6 %				
Surogate Recovery on 2,4,6-Trichlorophenol = 73.6 %				
Surogate Recovery on Terphenyl d14 = 101 %				

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C

Page: 11

Customer: James & Moore
 Project Description: NSP 05644-088 Project Title: MSN R-0899 0256
 Northern Lake Service Project Number: 49882

Analyte	210540 MW-1			
Name	ug/L	DILUTION	LOD	LOQ
Acenaphthene	ND	1.04	1.4	4.6
Acenaphthylene	ND	1.04	1.4	4.7
Anthracene	ND	1.04	1.2	3.9
Benzo[a]anthracene	ND	1.04	0.79	2.1
Benzo[a]pyrene	ND	1.04	1.3	4.2
Benzo[b]fluoranthene	ND	1.04	0.67	2.1
Benzo[g,h,i]perylene	ND	1.04	1.2	4.1
Benzo[k]fluoranthene	ND	1.04	1.4	4.6
Butylbenzylphtalate	ND	1.04	1.1	3.7
Chrysene	ND	1.04	0.71	2.3
Di n butylphtalate	ND	1.04	1.7	5.7
Dibenzofluoranthene	ND	1.04	0.72	2.3
2,4-Dimethylphenol	ND	1.04	3.2	11
Fluoranthene	ND	1.04	0.70	2.2
Indeno[1,2,3-cd]pyrene	ND	1.04	1.1	3.8
2-Methylnaphthalene	ND	1.04	0.72	2.3
3-Methylphenol	ND	1.04	1.5	5.0
3,4-Methylphenol	ND	1.04	1.4	4.5
Naphthalene	ND	1.04	1.6	5.2
Phenanthrene	ND	1.04	1.6	5.4
Phenol	ND	1.04	0.68	2.2
Pyrene	ND	1.04	1.3	2.6
Surrogate Recovery on 2-Fluorophenol - 44.3 %				
Surrogate Recovery on Phenol-d5 - 39.2 %				
Surrogate Recovery on Nitrobenzene-d5 - 68.1 %				
Surrogate Recovery on 2-Fluorobiphenyl - 68.1 %				
Surrogate Recovery on 2,4,6-Tribromophenol - 61.1 %				
Surrogate Recovery on Terphenyl-d14 - 71.6 %				

Customer: James A Moore
 Project Description: NSP 05644 088 Project Title: MSN R-0899 0256
 Northern Lake Service Project Number: 49882

Analyte	210541 MW-2			
Name	ug/L	DILUTION	LOD	LOQ
Acenaphthene	ND	1	1.3	4.5
Acenaphthylene	ND	1	1.4	4.5
Anthracene	ND	1	1.2	3.7
Benzo[a]anthracene	ND	1	0.76	2.1
Benzo[a]pyrene	ND	1	1.2	4.0
Benzo[b]fluoranthene	< 1.7 >	1	0.64	2.1
Benzo[g,h,i]perylene	ND	1	1.2	3.9
Benzo[k]fluoranthene	ND	1	1.3	4.4
Butylbenzylphthalate	ND	1	1.1	3.5
Chrysene	ND	1	0.68	2.2
Di-n-butylphthalate	ND	1	1.6	5.5
Dibenz[a,h]anthracene	ND	1	0.69	2.2
2,4-Dimethylphenol	ND	1	1.1	10
Fluoranthene	ND	1	0.67	2.2
Indeno[1,2,3-cd]pyrene	ND	1	1.1	3.6
2-Methylnaphthalene	ND	1	0.69	2.2
2-Methylphenol	ND	1	1.4	4.8
3,4,4-Methylphenol	ND	1	1.3	4.4
Naphthalene	ND	1	1.5	5.0
Phenanthrene	ND	1	1.5	5.2
Phenol	ND	1	0.65	2.1
Pyrene	ND	1	0.76	2.5
Surrogate Recovery on 2-Fluorophenol	- 45.2 %			
Surrogate Recovery on Phenol-d5	- 39.7 %			
Surrogate Recovery on Nitrobenzene-d5	- 64.3 %			
Surrogate Recovery on 2-Fluorobiphenyl	- 58.7 %			
Surrogate Recovery on 2,4,6-Tribromophenol	- 57.9 %			
Surrogate Recovery on Terphenyl-d14	- 67.2 %			

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C

Page: 15

Customer: Bunker & Moore
 Project Identification: NCP 00644 000 Project Title: MCH 0079 0076
 Northern Lake Service Project Number: 49882

Analyte Name	210542 MW-2 Dup µg/L	DILUTION FACTOR	LOD µg/L	LOQ µg/L
Acenaphthene	ND	1	1.3	4.5
Acenaphthylene	ND	1	1.4	4.5
Anthracene	ND	1	1.2	3.7
Benzo[a]anthracene	ND	1	0.76	2.1
Benzo[a]pyrene	ND	1	1.2	4.0
Benzo[b]fluoranthene	< 1.4 >	1	0.64	2.1
Benzo[g,h,i]perylene	ND	1	1.2	3.9
Benzo[k]fluoranthene	ND	1	1.1	4.4
Butylbenzylphthalate	ND	1	1.1	3.5
Chrysene	ND	1	1.6	5.5
Di-n-butylphthalate	ND	1	0.69	2.2
Dibenz[a,h]anthracene	ND	1	3.1	10
2,4-Dimethylphenol	ND	1	0.67	2.2
Fluoranthene	ND	1	1.1	3.6
Indeno[1,2,3-cd]pyrene	ND	1	0.69	2.2
2-Methylnaphthalene	ND	1	1.4	4.8
2-Methylphenol	ND	1	1.3	4.4
1 & 4-Methylphenol	ND	1	1.5	5.0
Naphthalene	ND	1	1.5	5.2
Phenanthrene	ND	1	0.65	2.1
Phenol	ND	1	0.76	2.5
Pyrene	ND	1	1.3	4.3

Surrogate Recovery on 2-Fluorophenol = 34.2 %
 Surrogate Recovery on Phenol-d5 = 34.2 %
 Surrogate Recovery on Nitrobenzene-d5 = 67.0 %
 Surrogate Recovery on 2-Fluorobiphenyl = 61.3 %
 Surrogate Recovery on 2,4,6-Tribromophenol = 48.3 %
 Surrogate Recovery on Terphenyl-d14 = 45.4 %

ANALYTICAL RESULTS: SEMI VOLATILE ORGANIC COMPOUNDS BY EPA 8270C

Page: 14

Customer: James & Moore
 Project Description: NSF 05644-088 Project Title: MSN-R-0899-0256
 Northern Lake Service Project Number: 49882

Analyte Name	210543 MW-9		DILUTION FACTOR	LOD ug/L	LOQ ug/L
	ug/L	MM %A			
Acenaphthene	2300	ND	204	280	920
Acenaphthylene	1800	ND	204	240	760
Anthracene	1800	ND	204	160	420
Benzo[a]anthracene	1100	ND	204	250	820
Benzo[b]fluoranthene	1200	ND	204	130	420
Benzo[g,h,i]perylene	2300	ND	204	240	800
Benzo[k]fluoranthene	2200	ND	204	270	900
Butylbenzylphthalate	2300	ND	204	220	720
Chrysene	1100	ND	204	330	1100
Di-n-butylphthalate	ND	ND	204	140	450
Dibenz[a,h]anthracene	ND	ND	204	630	2100
2,4-Dimethylphenol	1900	ND	204	140	440
Fluoranthene	ND	ND	204	220	740
Fluorene	ND	ND	204	140	450
Indeno[1,2,3-cd]pyrene	20000	ND	204	290	980
2-Methylnaphthalene	ND	ND	204	270	890
3-Methylphenol	ND	ND	204	310	1000
3 & 4 Methylphenol	53000	ND	204	310	1100
Naphthalene	7000	ND	204	130	420
Phenanthrene	ND	ND	204	160	520
Phenol	2700	ND	204	260	880
Pyrene	2700	ND	204	260	880
210544 MW-9A	ug/L		DILUTION FACTOR	LOD ug/L	LOQ ug/L
Acenaphthene	ND	ND	102	140	460
Acenaphthylene	ND	ND	102	140	460
Anthracene	ND	ND	102	120	380
Benzo[a]anthracene	ND	ND	102	78	210
Benzo[b]fluoranthene	ND	ND	102	120	410
Benzo[g,h,i]perylene	ND	ND	102	65	210
Benzo[k]fluoranthene	ND	ND	102	130	450
Butylbenzylphthalate	ND	ND	102	120	400
Chrysene	ND	ND	102	130	450
Di-n-butylphthalate	ND	ND	102	110	360
Dibenz[a,h]anthracene	ND	ND	102	69	220
2,4-Dimethylphenol	ND	ND	102	170	560
Fluoranthene	ND	ND	102	70	220
Fluorene	ND	ND	102	310	1000
Indeno[1,2,3-cd]pyrene	ND	ND	102	68	220
2-Methylnaphthalene	ND	ND	102	110	370
3 & 4 Methylphenol	< 370 >	ND	102	70	220
Naphthalene	ND	ND	102	150	490
Phenanthrene	ND	ND	102	130	450
Phenol	4100	ND	102	150	510
Pyrene	ND	ND	102	160	530
	ND	ND	102	66	210
	ND	ND	102	78	260
	ND	ND	102	130	440

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C

Page: 15

Customer: Luhrs & Moore
Project Description: NSP 05644-088 Project Title: MSN-R 0899-0256
Northern Lake Service Project Number: 49882

Analyte Name	210545 MW 13	DILUTION FACTOR	LOD ug/L	LOQ ug/L
	ug/L < 650 >			
Acenaphthene	ND	204	280	920
Acenaphthylene	ND	204	240	760
Anthracene	950	204	160	420
Benzo[a]anthracene	680	204	250	820
Benzo[a]pyrene	ND	204	130	420
Benzo[b]fluoranthene	ND	204	240	800
Benzo[k]fluoranthene	ND	204	270	900
Butylbenzylphthalate	ND	204	220	720
Chrysene	800	204	140	440
Di-n-butylphthalate	ND	204	330	1100
Dibenz[a,h]anthracene	ND	204	140	450
2,4-Dimethylphenol	ND	204	630	2100
Fluoranthene	750	204	140	440
Fluorene	ND	204	220	740
Indeno[1,2,3-cd]pyrene	ND	204	140	450
2-Methylnaphthalene	1900	204	290	980
2-Methylphenol	ND	204	270	890
3 & 4-Methylphenol	ND	204	310	1000
Naphthalene	14000	204	310	1100
Phenanthrene	1300	204	130	420
Phenol	ND	204	160	520
Pyrene	< 460 >	204	260	880



NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298
Tel: (715) 478-2777 • Fax: (715) 478-3060

NO. 39313

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab. Cert. No. 72162440

RETURN THIS FORM WITH SAMPLES.

DNR LICENSE		FID	
CLIENT <u>Dennis - Moore</u>			
PROJECT TITLE <u>NISP</u>			
ADDRESS <u>25 Kessel Cir Suite 201</u>		PROJECT NO. <u>05644-088</u>	
CITY <u>Madison</u> STATE <u>WI</u> ZIP <u>53711</u>		P.O. NO.	
CONTACT <u>Dave Tye</u>		PHONE <u>608-273-2586</u>	

ITEM NO.	NLS LAB. NO.	SAMPLE ID	DNR ID	COLLECTION		SAMPLE TYPE	GRAB/COMP.	CONTAINER PRESERVATIVE				COLLECTION REMARKS
				DATE	TIME			VIAL	6	0/6	1/1	
1	216374	MW-5		8/25	1110	6/LW	6	//	/	/	/	
2	216375	MW-5A & Dup		8/25	1120			//	/	/	/	
3	216376	MW-5B		8/25	1130			//	/	/	/	
4	216377	MW-5C		8/25	1140			//	/	/	/	
5	216378	MW-8		8/24	1545			//				
6	216379	MW-8A		8/24	1530			//				
7	216380	MW-11		8/24	1300			//				
8	216381	MW-10		8/24	1200			//				
9	216382	MW-10A		8/24	1230			//				
10	216383	MW-6		8/24	1115			//				
11	216384	MW-6A		8/24	1130			//				
12	216385											

SAMPLE TYPE:

SW=surface water
WW=wastewater
GW=groundwater

DW=drinking water
TIS=tissue
AIR=air

PROD=product
SOIL=soil
SED=sediment

describe others

CONTAINER

P = plastic
G = glass
V = glass vial
B = plastic bag

describe others

PRESERVATIVES & PREPARATION

NP = nothing added
S = sulfuric acid
N = nitric acid
Z = zinc acetate

OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid

describe others

COLLECTED BY (signature) [Signature]

RELINQUISHED BY (signature) [Signature]

RELINQUISHED BY (signature) [Signature]

SPATCHED BY (signature) [Signature]

RECEIVED BY (signature) [Signature]

RECEIVED BY (signature) [Signature]

METHOD OF TRANSPORT

CUSTODY SEAL NO. (IF ANY) DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

RECEIVED AT NLS BY (signature) [Signature]

DATE/TIME

CONDITION

TEMP.

SEAL INTACT

☐ YES ☒ NO

SEAL

REMARKS & OTHER INFORMATION

IMPORTANT

1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES. CLIENT MAY KEEP PINK COPY.



NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298
Tel: (715) 478-2777 • Fax: (715) 478-3060

NO. 39318

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 721-02460

RETURN THIS FORM WITH SAMPLES.

CLIENT <i>Daniel Moore</i>		DNR LICENSE	FID
ADDRESS <i>25 Kassal Ct Suite 201</i>		PROJECT TITLE <i>NSP</i>	
CITY <i>Madison</i>	STATE <i>WI</i>	PROJECT NO. <i>175644-088</i>	P.O. NO.
ZIP <i>53711</i>		CONTACT <i>Steve Traylor</i>	PHONE <i>608-273-2886</i>

EM NO.	NLS LAB. NO.	SAMPLE ID	DNR ID	COLLECTION		SAMPLE TYPE	GRAB COMP.	CONTAINER PRESERVATIVE			COLLECTION REMARKS
				DATE	TIME			G	Z	A	
1.	<i>2165</i>	<i>ML-8</i>		<i>8/24</i>	<i>1545</i>	<i>6W</i>	<i>6</i>	<i>1</i>	<i>1</i>	<i>1</i>	
2.	<i>2166</i>	<i>ML-8A</i>			<i>1530</i>						
3.	<i>2167</i>	<i>ML-11</i>			<i>1300</i>						
4.	<i>2168</i>	<i>ML-10</i>			<i>1200</i>						
5.	<i>2169</i>	<i>ML-10A</i>			<i>1230</i>						
6.	<i>2170</i>	<i>ML-1</i>			<i>1115</i>						
7.	<i>2171</i>	<i>ML-6A</i>			<i>180</i>						
8.	<i>2172</i>										
9.	<i>2173</i>										
10.	<i>2174</i>										
11.	<i>2175</i>										
12.	<i>2176</i>										

SAMPLE TYPE:

SW=surface water
WW=wastewater
GW=groundwater

DW=drinking water
TIS=tissue
AIR=air

PROD=product
SOIL=soil
SED=sediment

describe others

CONTAINER

P = plastic
G = glass
V = glass vial
B = plastic bag

describe others

PRESERVATIVES & PREPARATION

NP = nothing added
S = sulfuric acid
N = nitric acid
Z = zinc acetate

OH = sodium hydroxide
HA = hydrochloric &
ascorbic acid
H = hydrochloric acid

describe others

COLLECTED BY (signature)

ELINQUISHED BY (signature)

ELINQUISHED BY (signature)

DISPATCHED BY (signature)

RECEIVED BY (signature)

RECEIVED BY (signature)

METHOD OF TRANSPORT

CUSTODY SEAL NO. (IF ANY) DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

RECEIVED AT NLS BY (signature)

DATE/TIME

CONDITION

TEMP.

SEAL INTACT

☐ YES

☐ NO

SEAL #

REMARKS & OTHER INFORMATION

- IMPORTANT:**
1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED.
 2. PLEASE USE ONE LINE PER SAMPLE. **NOT** PER BOTTLE.
 3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.



NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298
Tel: (715) 478-2777 • Fax: (715) 478-3060

NO. 39323

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 72102nd001

RETURN THIS FORM WITH SAMPLES.

DNR LICENSE		FID	
CLIENT Damon Moore		PROJECT TITLE UST	
ADDRESS 25 Kessel Cir Suite 201		PROJECT NO. 05644-088	P.O. NO.
CITY Madison	STATE WI	ZIP 53711	CONTACT Dave Tranter
			PHONE 608.273.8836

ITEM NO.	NLS LAB. NO.	SAMPLE ID	DNR ID	COLLECTION		SAMPLE TYPE	GRAB/COMP.	CONTAINER PRESERVATIVE			COLLECTION REMARKS
				DATE	TIME			G	P	A	
1.	210540	1-1		8/25	1630	GW	G	1	1	1	
2.	210541	1-2		8/25	1700			1	1	1	
3.	210542	1-9		8/26	1045			1	1	1	
4.	210543	1-9A			1115			1	1	1	
5.	210545	1-13		V	1015	V	V	1	1	1	
6.											
7.											
8.											
9.											
10.											
11.											
12.											

SAMPLE TYPE: SW=surface water DW=drinking water PROD=product WW=wastewater TIS=tissue SOIL=soil GW=groundwater AIR=air SED=sediment describe others			CONTAINER P = plastic G = glass V = glass vial B = plastic bag describe others	PRESERVATIVES & PREPARATION NP = nothing added OH = sodium hydroxide S = sulfuric acid HA = hydrochloric & ascorbic acid N = nitric acid H = hydrochloric acid Z = zinc acetate describe others
---	--	--	---	---

COLLECTED BY (signature)	CUSTODY SEAL NO. (IF ANY)	DATE/TIME
RELINQUISHED BY (signature)	RECEIVED BY (signature)	DATE/TIME
RELINQUISHED BY (signature)	RECEIVED BY (signature)	DATE/TIME
DISPATCHED BY (signature)	METHOD OF TRANSPORT	DATE/TIME

RECEIVED AT NLS BY (signature)	DATE/TIME	CONDITION	TEMP.
SEAL INTACT <input type="checkbox"/> YES <input type="checkbox"/> NO	SEAL #	REMARKS & OTHER INFORMATION	

IMPORTANT: 1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

DUPLICATE COPY



NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298

Tel: (715) 478-2777 • Fax: (715) 478-3060

NO. 39315

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Revised 10/1/99

RETURN THIS FORM WITH SAMPLES.

CLIENT <u>Dennis Moore</u>		DNR LICENSE <u>ED</u>	
ADDRESS <u>25 Kessel Cir Suite 201</u>		PROJECT TITLE <u>NAP</u>	
CITY <u>Madison</u> STATE <u>WI</u> ZIP <u>53711</u>		PROJECT NO. <u>05644-088</u>	P.O. NO.
		CONTACT <u>Mr. Dave Trainer</u>	PHONE <u>608-773-2886</u>

TEM NO.	NLS LAB. NO.	SAMPLE ID	DNR ID	COLLECTION		SAMPLE TYPE	GRAB/ COMP.	CONTAINER PRESERVATIVE			COLLECTION REMARKS
				DATE	TIME			11	10	9	
1.	210651	111-4		8/21	1330	GL	6	1	1	1	
2.	210651	111-4A			1315		1	1	1		
3.	210651	111-4B			1300		1	1	1		
4.	210648	111-3			1530		1	1	1		
5.	210649	111-12+Dop			1450		1	1	1		
6.	210651	111-14			1415		1	1	1		
7.	210652	111-7A		8/26	1400			1	1	1	
8.											
9.											
10.											
11.											
12.											

SAMPLE TYPE:

SW=surface water
WW=wastewater
GW=groundwater

DW=drinking water
TIS=tissue
AIR=air

PROD=product
SOIL=soil
SED=sediment

describe others

CONTAINER

P = plastic
G = glass
V = glass vial
B = plastic bag

describe others

PRESERVATIVES & PREPARATION

NP = nothing added
S = sulfuric acid
N = nitric acid
Z = zinc acetate

OH = sodium hydroxide
HA = hydrochloric &
ascorbic acid
H = hydrochloric acid

describe others

COLLECTED BY (signature) [Signature]

RELINQUISHED BY (signature) [Signature]

RELINQUISHED BY (signature)

DISPATCHED BY (signature)

RECEIVED BY (signature) [Signature]

RECEIVED BY (signature)

METHOD OF TRANSPORT

CUSTODY SEAL NO. (if any) DATE/TIME

8/21/99 1600

1 8/21/99 1600

1 8/21/99 1600

1 8/21/99 1600

1 8/21/99 1600

1 8/21/99 1600

1 8/21/99 1600

RECEIVED AT NLS BY (signature) [Signature]

SEAL INTACT

☐ YES ☒ NO

SEAL #

DATE/TIME

8-30-99 10:00

CONDITION

11/1/99

TEMP.

11.1

REMARKS & OTHER INFORMATION

No. 39315 Del. label

See Appendix for information on center. See 8/30/99

Tests cancelled by Dave Trainer on 8/31/99 - SRC

PORTANTS

1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE. **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Grandin, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP-Ashland
Project Title: 05644-088

PAGE: 1 NLS PROJECT# 49933

NLS CUST# 8098

RECEIVED
SEP 1999

Sample ID: MW-1 **NLS#:** 210727
Ref. Line 1 of COC 39319 **Description:** MW-1
Collected: 08/25/99 **Received:** 08/31/99 **Reported:** 09/22/99

Parameter
VOCs (water) by EPA 8021

Result
see attached

Units

LOD

LOQ

Method SW846 8021 **Analyzed Lab** 09/02/99 721026460

Sample ID: MW-2 **NLS#:** 210728
Ref. Line 2 of COC 39319 **Description:** MW-2
Collected: 08/25/99 **Received:** 08/31/99 **Reported:** 09/22/99

Parameter
VOCs (water) by EPA 8021

Result
see attached

Units

LOD

LOQ

Method SW846 8021 **Analyzed Lab** 09/02/99 721026460

Sample ID: MW-2 Dup **NLS#:** 210729
Ref. Line 3 of COC 39319 **Description:** MW-2 Dup
Collected: 08/25/99 **Received:** 08/31/99 **Reported:** 09/22/99

Parameter
VOCs (water) by EPA 8021

Result
see attached

Units

LOD

LOQ

Method SW846 8021 **Analyzed Lab** 09/02/99 721026460

NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services
400 North Lake Avenue - Trouton, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

ANALYTICAL REPORT

PAGE: 2 NLS PROJECT# 49933

NLS CUST# 8098

Project Description: NSP-Ashland
Project Title: 05644-088

Sample ID: MW-3 **NLS#:** 210730
Ref. Line 4 of COC 39319 **Description:** MW-3
Collected: 08/27/99 **Received:** 08/31/99 **Reported:** 09/22/99

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>LOD</u>	<u>LOQ</u>	<u>Method</u>	<u>Analyzed Lab</u>
Samples on hold	hold					09/20/99 721026460

Sample ID: MW-4 **NLS#:** 210731
Ref. Line 5 of COC 39319 **Description:** MW-4
Collected: 08/27/99 **Received:** 08/31/99 **Reported:** 09/22/99

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>LOD</u>	<u>LOQ</u>	<u>Method</u>	<u>Analyzed Lab</u>
Samples on hold	hold					09/20/99 721026460

Sample ID: MW-4A **NLS#:** 210732
Ref. Line 6 of COC 39319 **Description:** MW-4A
Collected: 08/27/99 **Received:** 08/31/99 **Reported:** 09/22/99

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>LOD</u>	<u>LOQ</u>	<u>Method</u>	<u>Analyzed Lab</u>
Samples on hold	hold					09/20/99 721026460

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CKT. NO. 721026460

ANALYTICAL REPORT

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

PAGE: 3 NLS PROJECT# 49933
NLS CUST# 8098

Project Description: NSP-Ashland
Project Title: 05644-088

Sample ID: MW-4B **NLS#:** 210733
Ref. Line 7 of COC 39319 **Description:** MW-4B
Collected: 08/27/99 **Received:** 08/31/99 **Reported:** 09/22/99

Parameter

Result

Units

LOD

LOQ

Method

Analyzed Lab

Samples on hold

hold

09/20/99 721026460

Sample ID: MW-7A **NLS#:** 210734
Ref. Line 8 of COC 39319 **Description:** MW-7A
Collected: 08/26/99 **Received:** 08/31/99 **Reported:** 09/22/99

Parameter

Result

Units

LOD

LOQ

Method

Analyzed Lab

Samples on hold

hold

09/20/99 721026460

Sample ID: MW-9 **NLS#:** 210735
Ref. Line 9 of COC 39319 **Description:** MW-9
Collected: 08/26/99 **Received:** 08/31/99 **Reported:** 09/22/99

Parameter

Result

Units

LOD

LOQ

Method

Analyzed Lab

VOCs (water) by EPA 8021

see attached

SW846 8021 09/02/99 721026460

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

ANALYTICAL REPORT

WIS. LAB CERT. NO. 721026460

PAGE: 4 NLS. PROJECT# 49933

NLS CUST# 8098

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP-Ashland
Project Title: 05644-088

Sample ID: MW-9A **NLS#:** 210736
Ref. Line 10 of COC 39319 **Description:** MW-9A
Collected: 08/26/99 **Received:** 08/31/99 **Reported:** 09/22/99

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>LOD</u>	<u>LOQ</u>	<u>Method</u>	<u>Analyzed Lab</u>
VOCs (water) by EPA 8021	see attached				SW846 8021	09/02/99 721026460

Sample ID: MW-12 **NLS#:** 210737
Ref. Line 11 of COC 39319 **Description:** MW-12
Collected: 08/27/99 **Received:** 08/31/99 **Reported:** 09/22/99

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>LOD</u>	<u>LOQ</u>	<u>Method</u>	<u>Analyzed Lab</u>
Samples on hold	hold					09/20/99 721026460

Sample ID: MW-12 Dup **NLS#:** 210738
Ref. Line 12 of COC 39319 **Description:** MW-12 Dup
Collected: 08/27/99 **Received:** 08/31/99 **Reported:** 09/22/99

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>LOD</u>	<u>LOQ</u>	<u>Method</u>	<u>Analyzed Lab</u>
Samples on hold	hold					09/20/99 721026460

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Craiddon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

PAGE: 5 NLS PROJECT# 49933

NLS CUST# 8098

Project Description: NSP-Ashland
Project Title: 05644-088

Sample ID: MW-13 NLS#: 210739

Ref. Line 13 of COC 39319 Description: MW-13
Collected: 08/26/99 Received: 08/31/99 Reported: 09/22/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
VOCs (water) by EPA 8021	see attached				SW846 8021	09/03/99	721026460

Sample ID: MW-14 NLS#: 210740

Ref. Line 14 of COC 39319 Description: MW-14
Collected: 08/27/99 Received: 08/31/99 Reported: 09/22/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Samples on hold	hold					09/20/99	721026460

Sample ID: MW-16 NLS#: 210741

Ref. Line 15 of COC 39319 Description: MW-16
Collected: 08/28/99 Received: 08/31/99 Reported: 09/22/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	< 1.4	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	12	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
Cyanide, lot. (distilled) as CN	ND	mg/L	0.0032	0.011	SW846 315-4	09/07/99	721026460
Iron, dis. as Fe by ICP	0.20	mg/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	< 2.5	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	5.7	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	170	ug/L			SW846 6010	09/21/99	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	09/03/99	721026460
VOCs (water) by EPA 8021	see attached				SW846 8021	09/02/99	721026460
Base/Neutral/Acid Extraction	yes				SW846 3510	09/02/99	721026460
Semi-volatile GC/MS by 8270C	see attached				SW846 8270C	09/03/99	721026460

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 6 NLS PROJECT# 49933

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

NLS CUST# 8098

Project Description: NSP-Ashland
Project Title: 05644-088

Sample ID: MW-17 NLS#: 210742
Ref. Line 16 of COC 39319 Description: MW-17
Collected: 08/28/99 Received: 08/31/99 Reported: 09/22/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SM846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	0.96	ug/L	0.42	1.5	SM846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	1.3	ug/L	0.47	1.7	SM846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	ND	mg/L	0.0032	0.011	EPA 335.4	09/07/99	721026460
Iron, dis. as Fe by ICP	0.12	ug/L	0.0010	0.0035	SM846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	< 2.0 >	ug/L	1.4	5.1	SM846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	< 0.97 >	ug/L	0.66	2.3	SM846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	150	ug/L	12	12	SM846 3010	09/03/99	721026460
Metals digestion - total (water) ICP	yes				SM846 8021	09/02/99	721026460
VOCs (water) by EPA 8021	see attached				SM846 3510	09/02/99	721026460
Base/Neutral/Acid Extraction	yes				SM846		
Semivolatile GC/MS by 8270C	see attached				8270C		

Sample ID: MW-17A NLS#: 210743
Ref. Line 17 of COC 39319 Description: MW-17A
Collected: 08/28/99 Received: 08/31/99 Reported: 09/22/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SM846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	< 0.85 >	ug/L	0.42	1.5	SM846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	ND	ug/L	0.47	1.7	SM846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	ND	mg/L	0.0032	0.011	EPA 335.4	09/07/99	721026460
Iron, dis. as Fe by ICP	0.19	ug/L	0.0010	0.0035	SM846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	< 2.8 >	ug/L	1.4	5.1	SM846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	< 1.2 >	ug/L	0.66	2.3	SM846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	ND	ug/L	12	12	SM846 3010	09/03/99	721026460
Metals digestion - total (water) ICP	yes				SM846 8021	09/02/99	721026460
VOCs (water) by EPA 8021	see attached				SM846 3510	09/02/99	721026460
Base/Neutral/Acid Extraction	yes				SM846		
Semivolatile GC/MS by 8270C	see attached				8270C		

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

PAGE: 7 NLS PROJECT# 49933
NLS CUST# 8098

Project Description: NSP-Ashland
Project Title: 05644-088

Sample ID: Trip Blank **NLS#:** 210744
Ref. Line 18 of COC 39319 **Description:** Trip Blank
Collected: 08/28/99 **Received:** 08/31/99 **Reported:** 09/22/99

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>LOD</u>	<u>LOQ</u>	<u>Method</u>	<u>Analyzed Lab</u>
VOCs (water) by EPA 8021	see attached				SM846 8021	09/02/99 721026460

Values in brackets represent results greater than the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation".
Results greater than the LOQ are considered to be in the region of "Certain Quantitation".

LOD = Limit of Detection
DMB = Dry Weight Basis
LOQ = Limit of Quantitation
NA = Not Applicable
ND = Not Detected
41000 (mg/L) / 10000

Atkinson R. Cray

Reviewed by:

Authorized by:
R. T. Krueger
Laboratory Manager

ANALYTICAL RESULTS: VOC #021 List by EPA #700 (Column 2)

Page: 1

Customer: James L Moore
 Project Description: NSP Ashland Project Title: 05644 OHM
 Northern Lake Service Project Number: 49933

Analyte	210727 MW 1	INITIAL CONCENTRATION	1000	1000
Name	ug/L	ug/L	ug/L	ug/L
Benzene	ND	0.11	0.38	0.38
Bromobenzene	ND	0.20	0.70	0.70
Bromochloromethane	ND	0.22	0.77	0.77
Bromodichloromethane	ND	0.21	0.74	0.74
Bromoforn	ND	0.19	0.66	0.66
Bromomethane	ND	0.47	1.6	1.6
n-Butylbenzene	ND	0.13	1.1	1.1
sec-Butylbenzene	ND	0.27	0.94	0.94
tert-Butylbenzene	ND	0.17	0.56	0.56
Carbon Tetrachloride	ND	0.14	0.46	0.46
Chlorobenzene	ND	0.21	0.72	0.72
Chloroethane	ND	1.1	3.8	3.8
Chloroform	ND	0.17	0.57	0.57
Chloromethane	ND	0.72	2.4	2.4
2-Chlorotoluene	ND	0.25	0.87	0.87
4-Chlorotoluene	ND	0.16	0.52	0.52
Dibromochloromethane	ND	0.22	0.75	0.75
1,2-Dibromo-3-Chloropropane	ND	0.23	0.78	0.78
1,2-Dibromomethane	ND	0.17	0.58	0.58
Dibromomethane	ND	0.16	0.57	0.57
1,2-Dichlorobenzene	ND	0.20	0.68	0.68
1,3-Dichlorobenzene	ND	0.13	0.44	0.44
1,4-Dichlorobenzene	ND	0.16	0.55	0.55
Dichlorodifluoromethane	ND	0.24	0.83	0.83
1,1-Dichloroethane	ND	0.19	0.65	0.65
1,1-Dichloroethene	ND	0.16	0.52	0.52
1,1-Dichloroethene	ND	0.13	0.44	0.44
cis-1,2-Dichloroethene	ND	0.22	0.76	0.76
trans-1,2-Dichloroethene	ND	0.18	0.60	0.60
1,2-Dichloropropane	ND	0.21	0.74	0.74
1,3-Dichloropropane	ND	0.51	1.7	1.7
2,2-Dichloropropane	ND	0.12	0.39	0.39
cis-1,3-Dichloropropene	ND	0.25	0.87	0.87
trans-1,3-Dichloropropene	ND	0.25	0.86	0.86
Ethylbenzene	ND	0.24	0.81	0.81
Hexachlorobutadiene	ND	0.19	0.65	0.65
Isopropylbenzene	ND	0.17	0.56	0.56
p-Isopropyltoluene	ND	0.27	0.94	0.94
Methylene chloride	ND	0.22	0.77	0.77
Naphthalene	ND	0.23	0.78	0.78
n-Propylbenzene	ND	0.26	0.90	0.90
ortho-Xylene	ND	0.24	0.84	0.84
Styrene	ND	0.22	0.77	0.77
1,1,1,2-Tetrachloroethane	ND	0.22	0.75	0.75
1,1,2,2-Tetrachloroethane	ND	0.22	0.74	0.74
Tetrachloroethene	ND	0.25	0.86	0.86
Toluene	ND	0.16	0.54	0.54
1,2,3-Trichlorobenzene	ND	0.20	0.68	0.68
1,2,4-Trichlorobenzene	ND	0.21	0.72	0.72
1,1,1-Trichloroethane	ND	0.24	0.83	0.83
1,1,2-Trichloroethane	ND	0.20	0.70	0.70
Trichloroethene	ND	0.12	0.39	0.39
Trichlorofluoromethane	ND	0.13	0.44	0.44
1,2,3-Trichloropropane	ND	0.28	0.97	0.97

< 0.30 >

ANALYTICAL RESULTS: VOC 8021 List by EPA 8260 (Saturn 2)

Page: 2

Customer: Dames & Moore
Project Description: NSP-Ashland Project Title: 05044 ORR
Northern Lake Service Project Number: 49933

Analyte	210727 MW 1		DILUTION FACTOR	LOD	
	ug/L			ug/L	LXU
1,2,4-Trimethylbenzene	ND	1	1	0.25	0.88
1,3,5-Trimethylbenzene	ND	1	1	0.25	0.86
Vinyl Chloride	ND	1	1	0.18	0.61
meta,para-Xylene	ND	1	1	0.47	1.6
MTBE	ND	1	1	0.24	0.77
isopropyl ether	ND	1	1	0.25	0.85
Surrogate Recovery on Dibromofluoromethane - 113 %					
Surrogate Recovery on Toluene-d8 - 110 %					
Surrogate Recovery on 1-Bromo-4-Fluorobenzene - 109 %					

ANALYTICAL RESULTS FOR 8024 List by EPA 8240 (Column 2)

Page 4

Customer: Dunbar & Moore
Project Description: NSF Ashland Project Title: 05044 000
Northern Lake Service Project Number: 49933

Analyte Name	210728 MW 2 ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Benzene	ND	1	0.11	0.38
Bromobenzene	ND	1	0.20	0.70
Bromochloromethane	ND	1	0.22	0.77
Bromodichloromethane	ND	1	0.21	0.74
Bromoform	ND	1	0.19	0.66
Bromomethane	ND	1	0.47	1.6
n-Butylbenzene	ND	1	0.33	1.1
sec-Butylbenzene	ND	1	0.27	0.94
tert-Butylbenzene	ND	1	0.17	0.56
Carbon Tetrachloride	ND	1	0.14	0.46
Chlorobenzene	ND	1	0.21	0.72
Chloroethane	ND	1	1.1	3.8
Chloroform	ND	1	0.17	0.57
Chloromethane	ND	1	0.72	2.4
2-Chlorotoluene	ND	1	0.25	0.87
4-Chlorotoluene	ND	1	0.16	0.52
Dibromochloromethane	ND	1	0.22	0.75
1,2-Dibromo-3-Chloropropane	ND	1	0.24	0.78
1,2-Dibromoethane	ND	1	0.17	0.58
Dibromomethane	ND	1	0.16	0.57
1,2-Dichlorobenzene	ND	1	0.20	0.68
1,3-Dichlorobenzene	ND	1	0.13	0.44
1,4-Dichlorobenzene	ND	1	0.20	0.71
Dichlorodifluoromethane	ND	1	0.16	0.55
1,1-Dichloroethane	ND	1	0.24	0.83
1,2-Dichloroethane	ND	1	0.19	0.65
1,1-Dichloroethene	ND	1	0.16	0.52
cis-1,2-Dichloroethene	ND	1	0.13	0.44
trans-1,2-Dichloroethene	ND	1	0.22	0.76
1,2-Dichloropropane	ND	1	0.18	0.60
1,3-Dichloropropane	ND	1	0.21	0.74
2,2-Dichloropropane	ND	1	0.51	1.7
1,1-Dichloropropene	ND	1	0.12	0.39
cis-1,3-Dichloropropene	ND	1	0.25	0.87
trans-1,3-Dichloropropene	ND	1	0.25	0.86
Ethylbenzene	ND	1	0.24	0.83
Hexachlorobutadiene	ND	1	0.19	0.65
Isopropylbenzene	ND	1	0.17	0.56
p-Isopropyltoluene	ND	1	0.27	0.94
m-Tolylene chloride	ND	1	0.22	0.77
Napthalene	ND	1	0.23	0.78
n-Propylbenzene	ND	1	0.26	0.90
ortho-Xylene	ND	1	0.24	0.84
Styrene	ND	1	0.22	0.77
1,1,1,2-Tetrachloroethane	ND	1	0.22	0.75
1,1,2,2-Tetrachloroethane	ND	1	0.22	0.74
Tetrachloroethene	ND	1	0.25	0.86
Toluene	ND	1	0.16	0.54
1,2,3-Trichlorobenzene	ND	1	0.20	0.68
1,2,4-Trichlorobenzene	ND	1	0.21	0.72
1,1,1-Trichloroethane	ND	1	0.24	0.83
1,1,2-Trichloroethane	ND	1	0.12	0.40
Trichloroethene	ND	1	0.20	0.70
Trichlorofluoromethane	ND	1	0.12	0.39
1,2,3-Trichloropropane	ND	1	0.13	0.44
			0.28	0.97

ANALYTICAL RESULTS: VOC 8021 List by EPA 8260 (Saturn 2)

Page: 4

Customer: Dames & Moore
 Project Description: NSP-Ashland Project Title: 05644 088
 Northern Lake Service Project Number: 49933

Analyte	210720 PM 2	INITIALION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
1,2,4-Trimethylbenzene	ND	1	0.25	0.88
1,3,5-Trimethylbenzene	ND	1	0.25	0.86
Vinyl chloride	ND	1	0.18	0.61
meta, para-Xylene	ND	1	0.47	1.6
MTBE	ND	1	0.24	0.77
Isopropyl ether	ND	1	0.25	0.85
Surrogate Recovery on Dibromofluoromethane - 109 %				
Surrogate Recovery on Toluene-d8 - 106 %				
Surrogate Recovery on 1-Bromo-4-Fluorobenzene - 106 %				

ANALYTICAL RESULTS: VOC 8021 List by EPA 8240 (return 2)

Page: 5

Customer: Dames & Moore
 Project Description: NSP-Ashland Project Title: 05644 088
 Northern Lake Service Project Number: 49913

Analyte	210729 MW-2 Dup	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
Benzene	ND	1	0.11	0.18
Bromobenzene	ND	1	0.20	0.70
Bromochloromethane	ND	1	0.22	0.77
Bromodichloromethane	ND	1	0.21	0.74
Bromoforn	ND	1	0.19	0.66
Bromomethane	ND	1	0.47	1.6
n-Butylbenzene	ND	1	0.33	1.1
sec-Butylbenzene	ND	1	0.27	0.94
tert-Butylbenzene	ND	1	0.17	0.56
Carbon Tetrachloride	ND	1	0.14	0.46
Chlorobenzene	ND	1	0.21	0.72
Chloroethane	ND	1	1.1	3.8
Chloroform	ND	1	0.17	0.57
Chloromethane	ND	1	0.72	2.4
4-Chlorotoluene	ND	1	0.25	0.87
Dibromochloromethane	ND	1	0.16	0.52
1,2-Dibromo-3-Chloropropane	ND	1	0.22	0.75
1,2-Dibromomethane	ND	1	0.23	0.78
Dibromomethane	ND	1	0.17	0.58
1,2-Dichlorobenzene	ND	1	0.16	0.57
1,3-Dichlorobenzene	ND	1	0.20	0.68
1,4-Dichlorobenzene	ND	1	0.13	0.44
Dichlorodifluoromethane	ND	1	0.20	0.71
1,1-Dichloroethane	ND	1	0.16	0.55
1,2-Dichloroethane	ND	1	0.24	0.83
1,1-Dichloroethene	ND	1	0.19	0.65
cis-1,2-Dichloroethene	ND	1	0.11	0.52
trans-1,2-Dichloroethene	ND	1	0.22	0.44
1,3-Dichloropropene	ND	1	0.18	0.76
2,2-Dichloropropene	ND	1	0.21	0.60
1,1-Dichloropropene	ND	1	0.51	1.7
cis-1,3-Dichloropropene	ND	1	0.12	0.39
trans-1,3-Dichloropropene	ND	1	0.25	0.87
Ethylbenzene	ND	1	0.25	0.86
Hexachlorobutadiene	ND	1	0.24	0.83
Isopropylbenzene	ND	1	0.19	0.65
p-Isopropyltoluene	ND	1	0.17	0.56
Methylene chloride	ND	1	0.27	0.94
Naphthalene	ND	1	0.22	0.77
n-Propylbenzene	ND	1	0.23	0.78
ortho-Xylene	ND	1	0.26	0.90
Styrene	ND	1	0.24	0.84
1,1,1,2-Tetrachloroethane	ND	1	0.22	0.77
1,1,2,2-Tetrachloroethane	ND	1	0.22	0.75
Tetrachloroethene	ND	1	0.22	0.74
Toluene	ND	1	0.25	0.86
1,2,3-Trichlorobenzene	ND	1	0.16	0.54
1,2,4-Trichlorobenzene	ND	1	0.20	0.68
1,1,1-Trichloroethane	ND	1	0.21	0.72
1,1,2-Trichloroethane	ND	1	0.24	0.81
Trichloroethene	ND	1	0.20	0.70
Trichlorofluoromethane	ND	1	0.12	0.39
1,2,3-Trichloropropene	ND	1	0.13	0.44
			0.28	0.97

ANALYTICAL RESULTS: VOC 8021 List by EPA 8260 (Saturn 7)

Page: 6

Customer: Dames & Moore
Project Description: NSP Ashland Project Title: 05C44 008
Northern Lake Service Project Number: 49933

Analyte	Name	210729 MW 2 Day	1010709	1AD	1AQ
		ug/L	Factor	ug/L	ug/L
	1,2,4-Trimethylbenzene	ND	1	0.25	0.88
	1,3,5-Trimethylbenzene	ND	1	0.25	0.88
	Vinyl chloride	ND	1	0.18	0.61
	meta,para-Xylene	ND	1	0.47	1.6
	MTBE	ND	1	0.24	0.77
	Isopropyl ether	ND	1	0.25	0.85
	Surrogate Recovery on Dibromofluoromethane - 110 %				
	Surrogate Recovery on Toluene-d8 - 108 %				
	Surrogate Recovery on 1-Bromo-4-Fluorobenzene - 111 %				

ANALYTICAL RESULTS: VOC 8021 List by EPA 8460 (Column 2)

Page: 7

Customer: Dames & Moore
Project Description: NSP Ashland Project Title: 05644 088
Northern Lake Service Project Number: 49933

Analyte	210/35, MW 9	1600	1400
<u>Name</u>	<u>ug/L</u>	<u>ug/L</u>	<u>ug/L</u>
Benzene	5,000	560	1900
Bromobenzene	ND	400	1400
Bromochloroethane	ND	450	1500
Bromodichloroethane	ND	430	1500
Bromoform	ND	380	1300
Bromomethane	ND	950	3300
n-Butylbenzene	ND	660	2300
sec-Butylbenzene	ND	540	1900
tert-Butylbenzene	ND	330	1100
Carbon Tetrachloride	ND	280	920
Chlorobenzene	ND	410	1400
Chloroethane	ND	2100	7600
Chloroform	ND	340	1100
Chloromethane	ND	1400	4800
2-Chlorotoluene	ND	560	1700
4-Chlorotoluene	ND	410	1000
Ultramethochloromethane	ND	450	1500
1,2-Dibromo-3-Chloropropane	ND	330	1200
Dibromomethane	ND	390	1400
1,2-Dichlorobenzene	ND	270	890
1,3-Dichlorobenzene	ND	410	1400
1,4-Dichlorobenzene	ND	310	1100
Dichlorodifluoromethane	ND	370	1300
1,1-Dichloroethane	ND	2000	1000
cis-1,2-Dichloroethene	ND	310	1000
trans-1,2-Dichloroethene	ND	260	880
1,2-Dichloropropene	ND	440	1500
1,3-Dichloropropene	ND	360	1200
2,2-Dichloropropene	ND	430	1500
1,1-Dichloropropene	ND	1000	3500
cis-1,3-Dichloropropene	ND	240	790
trans-1,3-Dichloropropene	ND	500	1700
Ethylbenzene	3100	500	1700
Hexachlorobutadiene	ND	390	1700
Isopropylbenzene	ND	330	1100
p-Isopropyltoluene	ND	550	1900
Methylene chloride	ND	450	1500
Naphthalene	12,000	170	600
n-Propylbenzene	ND	430	1500
ortho-Xylene	< 910	480	1700
Styrene	< 1400	440	1700
1,1,1,2-Tetrachloroethane	ND	440	1500
1,1,2,2-Tetrachloroethane	ND	410	1400
Tetrachloroethene	ND	400	1700
Toluene	1,000	110	1700
1,2,3-Trichlorobenzene	ND	190	1400
1,2,4-Trichlorobenzene	ND	420	1400
1,1,1-Trichloroethane	ND	480	1700
1,1,2-Trichloroethane	ND	400	1400
Trichloroethene	ND	230	780
Trichlorofluoromethane	ND	260	880
1,2,3-Trichloropropane	ND	560	1900

ANALYTICAL RESULTS: VOC 8021 List by EPA 8260 (Saturn 2)

Page: 8

Customer: Dames & Moore
Project Description: NSP Ashland Project Title: 0644 008
Millburn Lake Service Project Number: 49913

Analyte	210715, MW 9	210715, MW 9	210715, MW 9	210715, MW 9
Name	ug/L	ug/L	ug/L	ug/L
1,2,4-Trimethylbenzene	< 510	2000	510	1800
1,3,5-Trimethylbenzene	ND	2000	500	1700
Vinyl chloride	ND	2000	170	1200
meta,para-xylene	< 2900	2000	940	3200
MTBE	ND	2000	480	1500
Isopropyl ether	ND	2000	500	1700
Surrogate Recovery on Dibromofluoromethane = 114 %				
Surrogate Recovery on Toluene-d8 = 111 %				
Surrogate Recovery on 1-Bromo-4-Fluorobenzene = 113 %				

ANALYTICAL RESULTS: WOC 8021 List by EPA 8260 (Column 2)

Page: 9

Customer: Dames & Moore
Project Description: NSP Ashland Project Title: 05644 080
Northern Lake Service Project Number: 49933

Analyte	210716, MW 9A	100	1000
Name	ug/L	ug/L	ug/L
Benzene	27000	230	760
Bromobenzene	ND	2000	1400
Bromochloromethane	ND	2000	400
Bromodichloromethane	ND	2000	450
Bromoforn	ND	2000	410
Bromomethane	ND	2000	380
n-Butylbenzene	ND	2000	950
sec-Butylbenzene	ND	2000	660
tert-Butylbenzene	ND	2000	540
Carbon Tetrachloride	ND	2000	330
Chlorobenzene	ND	2000	280
Chloroethane	ND	2000	410
Chloroform	ND	2000	2300
Chloromethane	ND	2000	340
2-Chlorotoluene	ND	2000	1400
4-Chlorotoluene	ND	2000	500
Dibromochloromethane	ND	2000	310
1,2-Dibromo-3-Chloropropane	ND	2000	410
Dibromomethane	ND	2000	450
1,2-Dichlorobenzene	ND	2000	330
1,3-Dichlorobenzene	ND	2000	390
1,4-Dichlorobenzene	ND	2000	270
Dichlorodifluoromethane	ND	2000	410
1,1-Dichloroethane	ND	2000	310
1,2-Dichloroethane	ND	2000	480
1,1-Dichloroethene	ND	2000	1700
cis-1,2-Dichloroethene	ND	2000	170
trans-1,2-Dichloroethene	ND	2000	260
1,2-Dichloropropene	ND	2000	440
1,3-Dichloropropene	ND	2000	360
2,2-Dichloropropene	ND	2000	430
1,1-Dichloropropene	ND	2000	1000
cis-1,3-Dichloropropene	ND	2000	240
trans-1,3-Dichloropropene	ND	2000	500
Ethylbenzene	ND	2000	500
Hexachlorobutadiene	1700	2000	1700
Isopropylbenzene	ND	2000	480
p-Isopropyltoluene	ND	2000	390
Methylene chloride	ND	2000	330
Napthalene	ND	2000	530
n-Propylbenzene	1400	2000	450
ortho-Xylene	ND	2000	450
Styrene	ND	2000	520
1,1,1,2-Tetrachloroethane	400	2000	480
1,1,2,2-Tetrachloroethane	ND	2000	440
Tetrachloroethene	ND	2000	410
Toluene	9600	2000	500
1,2,3-Trichlorobenzene	ND	2000	330
1,2,4-Trichlorobenzene	ND	2000	390
1,1,1-Trichloroethane	ND	2000	420
1,1,2-Trichloroethane	ND	2000	480
Trichloroethene	ND	2000	400
Trichlorofluoromethane	ND	2000	230
1,2,3-Trichloropropane	ND	2000	260

ANALYTICAL RESULTS: VOC 8021 List by EPA 8260 (Saturn 2)

Page: 10

Customer: Dames & Moore
Project Description: MSP-Ashland Project Title: 05644 088
Northern Lake Service Project Number: 49933

Analyte Name	210716 MW 9A		DILUTION FACTOR	LOD		LOD
	ug/L	ND		ug/L	ug/L	
1,2,4-Trimethylbenzene	ND	ND	2000	510	1800	1800
1,3,5-Trimethylbenzene	ND	ND	2000	500	1700	1700
Vinyl chloride	ND	ND	2000	370	1200	1200
meta,para-Xylene	< 2000	>	2000	940	3200	3200
MTBE	ND	ND	2000	480	1500	1500
Isopropyl ether	ND	ND	2000	500	1700	1700
Surrogate Recovery on Dibromofluoromethane - 107 %						
Surrogate Recovery on Toluene-d8 - 106 %						
Surrogate Recovery on 1 Bromo 4 fluorobenzene - 109 %						

Analyte Name	210739 MW 13 ug/L	DILUTION FACTOR	100 ug/L	1400 ug/L
Benzene	5600	1000	110	180
Bromobenzene	ND	1000	200	700
Bromochloromethane	ND	1000	220	770
Bromodichloromethane	ND	1000	210	740
Bromoform	ND	1000	190	660
Bromomethane	ND	1000	470	1600
n-Butylbenzene	ND	1000	310	1100
sec-Butylbenzene	ND	1000	270	940
tert-Butylbenzene	ND	1000	170	560
Carbon Tetrachloride	ND	1000	140	460
Chlorobenzene	ND	1000	1100	720
Chloroethane	ND	1000	170	3000
Chloroform	ND	1000	170	570
Chloromethane	ND	1000	720	2400
2-Chlorotoluene	ND	1000	250	870
4-Chlorotoluene	ND	1000	160	520
Dibromochloromethane	ND	1000	220	750
1,2-Dibromo-3-Chloropropane	ND	1000	230	780
1,2-Dibromomethane	ND	1000	170	580
Dibromomethane	ND	1000	160	570
1,2-Dichlorobenzene	ND	1000	200	680
1,3-Dichlorobenzene	ND	1000	130	440
1,4-Dichlorobenzene	ND	1000	200	710
Dichlorodifluoromethane	ND	1000	160	550
1,1-Dichloroethane	ND	1000	240	830
1,2-Dichloroethane	ND	1000	190	650
1,1-Dichloroethene	ND	1000	160	520
cis-1,2-Dichloroethene	ND	1000	130	440
trans-1,2-Dichloroethene	ND	1000	270	760
1,2-Dichloropropene	ND	1000	180	600
1,3-Dichloropropene	ND	1000	210	740
2,2-Dichloropropene	ND	1000	510	1700
1,1-Dichloropropene	ND	1000	120	390
cis-1,3-Dichloropropene	ND	1000	250	870
trans-1,3-Dichloropropene	ND	1000	250	860
Ethylbenzene	2300	1000	240	830
Hexachlorobutadiene	ND	1000	190	640
Isopropylbenzene	ND	1000	170	560
p-Isopropyltoluene	ND	1000	270	940
Methylene chloride	9100	1000	220	770
Methylalene	ND	1000	230	780
n-Propylbenzene	ND	1000	260	900
ortho-Xylene	< 720 >	1000	240	840
Styrene	ND	1000	220	770
1,1,1,2-Tetrachloroethane	ND	1000	220	750
1,1,2,2-Tetrachloroethane	ND	1000	220	740
Tetrachloroethene	ND	1000	250	860
Toluene	4200	1000	160	540
1,2,3-Trichlorobenzene	ND	1000	200	680
1,2,4-Trichlorobenzene	ND	1000	210	720
1,1,1-Trichloroethane	ND	1000	240	830
1,1,2-Trichloroethane	ND	1000	200	700
Trichloroethene	ND	1000	170	590
Trichlorofluoromethane	ND	1000	130	440
1,2,3-Trichloropropene	ND	1000	280	970

ANALYTICAL RESULTS: VOC 8021 List by EPA 8260 (Saturn 2)

Page: 12

Customer: Dames & Moore
Project Description: MSP Ashland Project Title: 05644 008
Northern Lake Service Project Number: 49933

Analyte	210739 MW 13	DILUTION	LOD	L/0
Name	ug/L	FACTOR	ug/L	ug/L
1,2,4-Trimethylbenzene	< 400 >	1000	250	860
1,3,5-Trimethylbenzene	ND	1000	180*	610
Vinyl chloride	ND	1000	470	1600
meta,para-Xylene	< 1600 >	1000	240	770
MTBE	ND	1000	250	850
Isopropyl ether				
Surrogate Recovery on Dibromofluoromethane - 113 %				
Surrogate Recovery on Toluene-d8 - 109 %				
Surrogate Recovery on 1-Bromo-4-Fluorobenzene - 110 %				

ANALYTICAL RESULTS: VOC 8021 List by EPA 8260 (Saturn 2)

Page: 13

Customer: James E. Moore
 Project Description: NSP Ashland Project Title: 0644 URB
 Northern Lake Service Project Number: 49933

Analyte	210741 MH-16		
Name	ug/L	DILUTION	LOD
Benzene	0.50	1	0.38
Bromobenzene	ND	1	0.70
Bromochloromethane	ND	1	0.77
Bromodichloromethane	ND	1	0.74
Bromoform	ND	1	0.66
Bromomethane	ND	1	1.6
n-Butylbenzene	ND	1	1.1
sec-Butylbenzene	ND	1	0.94
tert-Butylbenzene	ND	1	0.56
Carbon Tetrachloride	ND	1	0.46
Chlorobenzene	ND	1	0.72
Chloroethane	ND	1	3.8
Chloroform	ND	1	0.57
Chloromethane	ND	1	2.4
2-Chlorotoluene	ND	1	0.87
4-Chlorotoluene	ND	1	0.75
Dibromochloromethane	ND	1	0.78
1,2-Dibromo-3-Chloropropane	ND	1	0.58
1,2-Dibromomethane	ND	1	0.57
1,2-Dichlorobenzene	ND	1	0.68
1,3-Dichlorobenzene	ND	1	0.44
1,4-Dichlorobenzene	ND	1	0.71
Dichlorodifluoromethane	ND	1	0.55
1,1-Dichloroethane	ND	1	0.83
1,2-Dichloroethane	ND	1	0.65
1,1-Dichloroethylene	ND	1	0.52
cis-1,2-Dichloroethylene	ND	1	0.44
trans-1,2-Dichloroethylene	ND	1	0.76
1,2-Dichloropropene	ND	1	0.60
1,3-Dichloropropene	ND	1	0.74
2,2-Dichloropropene	ND	1	1.7
1,1-Dichloropropene	ND	1	0.39
cis-1,3-Dichloropropene	ND	1	0.87
trans-1,3-Dichloropropene	ND	1	0.86
Ethylbenzene	ND	1	0.25
Hexachlorobutadiene	ND	1	0.24
Isopropylbenzene	ND	1	0.19
p-Isopropyltoluene	ND	1	0.17
Methylene chloride	ND	1	0.27
Naphthalene	ND	1	0.22
n-Propylbenzene	ND	1	0.23
ortho-Xylene	ND	1	0.26
Styrene	ND	1	0.24
1,1,1,2-Tetrachloroethane	ND	1	0.22
1,1,1,2,2-Tetrachloroethane	ND	1	0.22
Tetrachloroethene	ND	1	0.25
Toluene	ND	1	0.16
1,2,3-Trichlorobenzene	ND	1	0.20
1,2,4-Trichlorobenzene	ND	1	0.21
1,1,1-Trichloroethane	ND	1	0.24
1,1,2-Trichloroethane	ND	1	0.20
Trichloroethene	ND	1	0.12
Trichlorofluoromethane	ND	1	0.13
1,2,3-Trichloropropene	ND	1	0.28

< 0.67 >

ANALYTICAL RESULTS: VOC #021 List by EPA #2000 Column 2:

Page: 14

Customer: Dames & Moore
Project Description: MSP Ashland Project Title: 05644 000
Northern Lake Service Project Number: 49933

Analyte	Name	210741 MW 10	100	100
		ug/L	ug/L	ug/L
	1,2,4-Trimethylbenzene	ND	0.25	0.88
	1,3,5-Trimethylbenzene	ND	0.25	0.86
	Vinyl chloride	ND	0.18	0.61
	meta,para-Xylene	ND	0.47	1.6
	MTBE	ND	0.24	0.77
	Isopropyl ether	ND	0.25	0.85
	Surrogate Recovery on Dibromofluoromethane - 105 %			
	Surrogate Recovery on Toluene-d8 - 102 %			
	Surrogate Recovery on 1-Bromo-4-Fluorobenzene - 104 %			

Analyte

Name	210742 MW 17	DILUTION FACTOR	LOD $\mu\text{g/L}$	LOQ $\mu\text{g/L}$
Styrene	< 0.25 >	1	0.11	0.38
Benzene	ND	1	0.20	0.70
Bromobenzene	ND	1	0.22	0.77
Bromochloromethane	ND	1	0.21	0.74
Bromodichloromethane	ND	1	0.19	0.66
Bromoform	ND	1	0.33	1.1
Bromomethane	ND	1	0.27	0.94
n-Butylbenzene	ND	1	0.17	0.56
sec-Butylbenzene	ND	1	0.14	0.46
tert-Butylbenzene	ND	1	0.21	0.72
Carbon Tetrachloride	ND	1	1.1	3.8
Chlorobenzene	ND	1	0.17	0.57
Chloroethane	ND	1	0.74	2.4
Chloroform	ND	1	0.25	0.87
Chloromethane	ND	1	0.16	0.52
2-Chlorotoluene	ND	1	0.22	0.75
4-Chlorotoluene	ND	1	0.23	0.78
Dibromochloromethane	ND	1	0.17	0.58
1,2-Dibromo-3-Chloropropane	ND	1	0.16	0.57
1,2-Dibromomethane	ND	1	0.20	0.68
Dibromomethane	ND	1	0.11	0.44
1,2-Dichlorobenzene	ND	1	0.20	0.71
1,3-Dichlorobenzene	ND	1	0.16	0.55
Dichlorodifluoromethane	ND	1	0.24	0.83
1,1-Dichloroethane	ND	1	0.19	0.65
1,2-Dichloroethane	ND	1	0.16	0.52
cis-1,2-Dichloroethene	ND	1	0.22	0.76
trans-1,2-Dichloroethene	ND	1	0.18	0.60
1,2-Dichloropropene	ND	1	0.21	0.74
1,3-Dichloropropene	ND	1	0.51	1.7
2,2-Dichloropropene	ND	1	0.12	0.39
1,1-Dichloropropene	ND	1	0.25	0.87
cis-1,3-Dichloropropene	ND	1	0.25	0.86
trans-1,3-Dichloropropene	ND	1	0.24	0.83
Ethylbenzene	ND	1	0.19	0.65
Hexachlorobutadiene	ND	1	0.17	0.56
Isopropylbenzene	ND	1	0.27	0.94
p-Isopropyltoluene	ND	1	0.22	0.77
Methylene chloride	ND	1	0.23	0.78
Naphthalene	ND	1	0.26	0.90
n-Propylbenzene	ND	1	0.24	0.84
ortho-Xylene	ND	1	0.22	0.77
Styrene	ND	1	0.22	0.74
1,1,1,2-Tetrachloroethane	ND	1	0.25	0.86
1,1,2,2-Tetrachloroethane	ND	1	0.16	0.54
Tetrachloroethene	ND	1	0.21	0.68
Toluene	< 0.26 >	1	0.24	0.72
1,2,3-Trichlorobenzene	ND	1	0.24	0.81
1,2,4-Trichlorobenzene	ND	1	0.20	0.70
1,1,1-Trichloroethane	ND	1	0.13	0.49
1,1,2-Trichloroethane	ND	1	0.44	1.4
Trichloroethene	ND	1	0.28	0.97
Trichlorofluoromethane	ND	1	0.17	0.57
1,2,3-Trichloropropene	ND	1	0.17	0.57

ANALYTICAL RESULTS: VOC 8021 List by EPA 8260 (Continued)

Page: 16

Customer: James & Moore
 Project Description: NRP Antland Project Title: 07444 000
 Northern Lake Service Project Number: 49911

Analyte

Name	210742 MW 17 ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L
1,2,4-Trimethylbenzene	ND	1	0.25	0.88
1,3,5-Trimethylbenzene	ND	1	0.25	0.88
Vinyl chloride	ND	1	0.18	0.61
meta,para Xylene	ND	1	0.47	1.6
MIBK	ND	1	0.24	0.77
Isopropyl ether	ND	1	0.25	0.85
Surrogate Recovery on Dibromofluoromethane = 110 %				
Surrogate Recovery on Toluene-d8 = 106 %				
Surrogate Recovery on 1-Bromo 4-Fluorobenzene = 108 %				

ANALYTICAL RESULTS: VOC 6021 List By EPA 8260 (Saturn 2)

Page: 17

Customer: Dames & Moore
 Project Description: MSP Ashland Project Title: 05644 088
 Northern Lake Service Project Number: 49933

Analyte Name	210743 MW 17A ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Benzene	ND	1	0.11	0.18
Bromobenzene	ND	1	0.20	0.70
Bromochloromethane	ND	1	0.22	0.77
Bromodichloromethane	ND	1	0.21	0.74
Bromoform	ND	1	0.19	0.66
Bromomethane	ND	1	0.47	1.6
n-Butylbenzene	ND	1	0.33	1.1
sec-Butylbenzene	ND	1	0.27	0.94
tert-Butylbenzene	ND	1	0.17	0.56
Carbon Tetrachloride	ND	1	0.14	0.46
Chlorobenzene	ND	1	0.21	0.72
Chloroethane	ND	1	1.1	3.8
Chloroform	ND	1	0.17	0.57
Chloromethane	ND	1	0.72	2.4
2-Chlorotoluene	ND	1	0.25	0.87
4-Chlorotoluene	ND	1	0.16	0.52
Dibromochloromethane	ND	1	0.22	0.75
1,2-Dibromo-3-Chloropropane	ND	1	0.23	0.78
1,2-Dibromomethane	ND	1	0.17	0.58
Dibromomethane	ND	1	0.16	0.57
1,2-Dichlorobenzene	ND	1	0.20	0.68
1,3-Dichlorobenzene	ND	1	0.13	0.44
1,4-Dichlorobenzene	ND	1	0.20	0.71
Dichlorodifluoromethane	ND	1	0.16	0.55
1,1-Dichloroethane	ND	1	0.24	0.81
1,2-Dichloroethane	ND	1	0.16	0.52
cis-1,2-Dichloroethene	ND	1	0.16	0.52
trans-1,2-Dichloroethene	ND	1	0.13	0.44
1,2-Dichloropropane	ND	1	0.22	0.76
1,3-Dichloropropane	ND	1	0.18	0.60
2,2-Dichloropropane	ND	1	0.21	0.74
1,1-Dichloropropene	ND	1	0.51	1.7
cis-1,3-Dichloropropene	ND	1	0.12	0.39
trans-1,3-Dichloropropene	ND	1	0.25	0.87
Ethylbenzene	ND	1	0.25	0.86
Hexachlorobutadiene	ND	1	0.24	0.83
Isopropylbenzene	ND	1	0.19	0.65
p-Isopropyltoluene	ND	1	0.17	0.56
Methylene chloride	ND	1	0.27	0.94
Naphthalene	ND	1	0.22	0.77
n-Propylbenzene	ND	1	0.23	0.78
ortho-Xylene	ND	1	0.26	0.90
Styrene	ND	1	0.24	0.84
1,1,1,2-Tetrachloroethane	ND	1	0.22	0.77
1,1,2,2-Tetrachloroethane	ND	1	0.22	0.75
Tetrachloroethene	ND	1	0.22	0.74
Toluene	ND	1	0.25	0.86
1,2,3-Trichlorobenzene	ND	1	0.16	0.54
1,2,4-Trichlorobenzene	ND	1	0.20	0.68
1,1,1-Trichloroethane	ND	1	0.21	0.72
1,1,2-Trichloroethane	ND	1	0.24	0.81
Trichloroethene	ND	1	0.20	0.70
Trichlorofluoromethane	ND	1	0.12	0.39
1,2,3-Trichloropropane	ND	1	0.13	0.44
			0.28	0.97

ANALYTICAL RESULTS: VOC 8021 List by EPA 8260 (Saturn 2)

Page: 18

Customer: Dames & Moore
 Project Description: NSP Ashland Project Title: 05644-088
 Northern Lake Service Project Number: 49913

Analyte	210743 MM 17A ug/L	DILUTION FACTOR	LOD ug/L	LOU ug/L
1,2,4-Trimethylbenzene	ND	1	0.25	0.88
1,3,5-Trimethylbenzene	ND	1	0.25	0.86
Vinyl chloride	ND	1	0.18	0.61
meta,para-Xylene	ND	1	0.47	1.6
MTBE	ND	1	0.24	0.77
Isopropyl ether	ND	1	0.25	0.85
Surrogate Recovery on Toluene-d8 = 107 %				
Surrogate Recovery on 1-Bromo-4-Fluorobenzene = 110 %				

Analyte Name	210744 Trip Blank ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Benzene	MD	1	0.11	0.38
Bromobenzene	MD	1	0.20	0.70
Bromochloromethane	MD	1	0.22	0.77
Bromodichloromethane	MD	1	0.21	0.74
Bromoforn	MD	1	0.19	0.66
Bromomethane	MD	1	0.47	1.6
n-Butylbenzene	MD	1	0.31	1.1
sec-Butylbenzene	MD	1	0.27	0.94
tert-Butylbenzene	MD	1	0.17	0.56
Carbon Tetrachloride	MD	1	0.14	0.46
Chlorobenzene	MD	1	0.21	0.72
Chloroethane	MD	1	1.1	3.8
Chloroform	MD	1	0.17	0.57
Chloromethane	MD	1	0.72	2.4
4-Chlorotoluene	MD	1	0.25	0.87
Dibromochloromethane	MD	1	0.16	0.52
Dibromochloromethane	MD	1	0.22	0.75
1,2-Dibromo-3-Chloropropane	MD	1	0.23	0.78
1,2-Dibromomethane	MD	1	0.17	0.58
Dibromomethane	MD	1	0.16	0.57
1,2-Dichlorobenzene	MD	1	0.20	0.68
1,3-Dichlorobenzene	MD	1	0.13	0.44
1,4-Dichlorobenzene	MD	1	0.20	0.71
Dichlorodifluoromethane	MD	1	0.16	0.55
1,1-Dichloroethane	MD	1	0.24	0.83
1,2-Dichloroethane	MD	1	0.19	0.65
1,1-Dichloroethene	MD	1	0.16	0.52
cis-1,2-Dichloroethene	MD	1	0.13	0.44
trans-1,2-Dichloroethene	MD	1	0.22	0.76
1,2-Dichloropropane	MD	1	0.18	0.60
1,3-Dichloropropane	MD	1	0.21	0.74
2,2-Dichloropropane	MD	1	0.51	1.7
1,1-Dichloropropene	MD	1	0.12	0.39
cis-1,3-Dichloropropene	MD	1	0.25	0.87
trans-1,3-Dichloropropene	MD	1	0.25	0.86
Hexachlorocyclotriene	MD	1	0.24	0.81
Isopropylbenzene	MD	1	0.19	0.65
p-Isopropyltoluene	MD	1	0.17	0.56
Methylene chloride	MD	1	0.27	0.94
Naphthalene	MD	1	0.22	0.77
n-Propylbenzene	MD	1	0.23	0.78
ortho-Xylene	MD	1	0.26	0.90
Styrene	MD	1	0.24	0.84
1,1,1,2-Tetrachloroethane	MD	1	0.22	0.77
1,1,2,2-Tetrachloroethane	MD	1	0.22	0.74
Tetrachloroethene	MD	1	0.22	0.74
Toluene	MD	1	0.25	0.86
1,2,3-Trichlorobenzene	MD	1	0.16	0.54
1,2,4-Trichlorobenzene	MD	1	0.20	0.68
1,1,1-Trichloroethane	MD	1	0.21	0.72
1,1,2-Trichloroethane	MD	1	0.24	0.81
Trichloroethene	MD	1	0.20	0.70
Trichlorofluoromethane	MD	1	0.12	0.39
1,2,3-Trichloropropane	MD	1	0.13	0.44
	MD	1	0.28	0.97

ANALYTICAL RESULTS: VOC 8021 List by EPA 8260 (Solute 2)

Page: 20

Customer: Dames & Moore
Project Description: NRP Ashland Project Title: 05644 000
Northern Lake Service Project Number: 49933

Analyte	210744 Trip Blank	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Name				
1,2,4 Trimethylbenzene	ND	1	0.25	0.88
1,3,5 Trimethylbenzene	ND	1	0.25	0.86
Vinyl chloride	ND	1	0.18	0.61
meta,para-Xylene	ND	1	0.47	1.6
mPS	ND	1	0.24	0.77
Isopropyl ether	ND	1	0.25	0.85
Surrogate Recovery on Dibromofluoromethane - 102 %				
Surrogate Recovery on Toluene-d8 - 98.0 %				
Surrogate Recovery on 1-Bromo-4-Fluorobenzene - 103 %				

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C

Page: 2

Customer: Dames & Moore
 Project Description: NSP-Ashland Project Title: 05644 088
 Northern Lake Service Project Number: 49933

Analyte	210742 MW 17	DILUTION	LDD	LOO
Name:	ug/l	FACTOR	ug/l	ug/l
Acenaphthene	ND	1	1.1	4.1
Acenaphthylene	ND	1	1.4	4.5
Anthracene	ND	1	1.2	3.7
Benzo[a]anthracene	ND	1	0.76	2.1
Benzo[a]pyrene	ND	1	1.2	4.0
Benzo[b]fluoranthene	ND	1	0.64	2.1
Benzo[g,h,i]perylene	ND	1	1.2	3.9
Benzo[k]fluoranthene	ND	1	1.3	4.4
Buylbenzylphthalate	ND	1	1.1	3.5
Chrysene	ND	1	0.68	2.2
Di-n-butylphthalate	ND	1	1.6	5.5
Dibenzo[a,h]anthracene	ND	1	0.69	2.2
2,4-Dimethylphenol	ND	1	3.1	10
Fluoranthene	ND	1	0.67	2.2
Fluorene	ND	1	1.1	3.6
Indeno[1,2,3-cd]pyrene	ND	1	0.69	2.2
2-Methylnaphthalene	ND	1	1.4	4.8
2-Methylphenol	ND	1	1.1	4.4
3 & 4-Methylphenol	ND	1	1.5	5.0
Naphthalene	ND	1	1.5	5.2
Phenanthrene	ND	1	0.65	2.1
Phenol	ND	1	0.76	2.5
Pyrene	ND	1	1.1	4.3
Surrogate Recovery on 2-Fluorophenol = 69.2 %				
Surrogate Recovery on Phenol-d5 = 50.3 %				
Surrogate Recovery on Nitrobenzene-d5 = 74.5 %				
Surrogate Recovery on 2-Fluorobiphenyl = 71.4 %				
Surrogate Recovery on 2,4,6-Tribromophenol = 72.0 %				
Surrogate Recovery on Terphenyl-d14 = 61.5 %				

ANALYTICAL RESULTS: Semi-Volatile Organic Compounds by EPA 8210F

Page: 1

Customer: Dames & Moore

Project Description: NSP Ashland Project Title: 05644 000

Northern Lake Service Project Number: 49933

Analyte	210741	PM 10	DETECTION	LOD	UDD
Name	ug/L		Factor	ug/L	ug/L
Acenaphthene	ND	1.03	1.4	4.6	
Acenaphthylene	ND	1.03	1.4	4.6	
Anthracene	ND	1.03	1.7	3.9	
Benzo[a]anthracene	ND	1.03	0.78	2.1	
Benzo[a]pyrene	ND	1.03	1.2	4.2	
Benzo[b]fluoranthene	ND	1.03	0.66	2.1	
Benzo[k]fluoranthene	ND	1.03	1.2	4.0	
Benzo[ghi]perylene	ND	1.03	1.4	4.5	
Butylbenzylphthalate	ND	1.03	1.1	3.6	
Chrysene	ND	1.03	0.70	2.2	
Di-n-butylphthalate	ND	1.03	1.7	5.6	
Dibenz[a,h]anthracene	ND	1.03	0.71	2.3	
2,4-Dimethylphenol	ND	1.03	3.2	11	
Fluoranthene	ND	1.03	0.69	2.2	
Fluorene	ND	1.03	1.1	3.7	
Indeno[1,2,3-cd]pyrene	ND	1.03	0.71	2.3	
2-Methylnaphthalene	ND	1.03	1.5	5.0	
2-Methylphenol	ND	1.03	1.3	4.5	
3,4,4-Methylphenol	ND	1.03	1.5	5.2	
Naphthalene	ND	1.03	1.6	5.3	
Phenanthrene	ND	1.03	0.67	2.1	
Phenol	ND	1.03	0.78	2.6	
Pyrene	ND	1.03	1.3	4.4	
Surrogate Recovery on 2-Fluorophenol - 70.1 %					
Surrogate Recovery on Phenol d5 - 56.2 %					
Surrogate Recovery on Nitrobenzene d5 - 77.1 %					
Surrogate Recovery on 2-Fluorobiphenyl - 74.9 %					
Surrogate Recovery on 2,4,6-Trichlorophenol - 69.0 %					
Surrogate Recovery on Terphenyl d14 - 79.4 %					

ANALYTICAL RESULTS: Semi-Volatile Organic Compounds by EPA 8270C

Page: 3

Customer: Dames & Moore

Project Description: NSP Ashland Project Title: 05644 008

Northern Lake Service Project Number: 49933

Analyte	210743 MW 17A	CONC	LOD	LOQ
Name	ug/L	ug/L	ug/L	ug/L
Acenaphthene	ND	1.02	1.4	4.6
Acenaphthylene	ND	1.02	1.4	4.6
Anthracene	ND	1.02	1.2	4.8
Benzo[a]anthracene	ND	1.02	0.78	2.1
Benzo[a]pyrene	ND	1.02	1.2	4.1
Benzo[b]fluoranthene	ND	1.02	0.65	2.1
Benzo[g,h,i]perylene	ND	1.02	1.2	4.0
Benzo[k]fluoranthene	ND	1.02	1.3	4.5
Butylbenzylphthalate	ND	1.02	1.1	3.6
Chrysene	ND	1.02	0.69	2.2
Di n butylphthalate	ND	1.02	1.7	5.6
Dibenz[a,h]anthracene	ND	1.02	0.70	2.2
2,4 dimethylphenol	ND	1.02	3.1	10
Fluoranthene	ND	1.02	0.68	2.2
Fluorene	ND	1.02	1.1	3.7
Indeno[1,2,3-cd]pyrene	ND	1.02	0.70	2.2
2-Methylnaphthalene	ND	1.02	1.5	4.9
2-Methylphenol	ND	1.02	1.3	4.5
3 & 4-Methylphenol	ND	1.02	1.5	5.1
Naphthalene	ND	1.02	1.6	5.3
Phenanthrene	ND	1.02	0.66	2.1
Phenol	ND	1.02	0.78	2.6
Pyrene	ND	1.02	1.3	4.4
Surrogate Recovery on 2-Fluorophenol				
Surrogate Recovery on 2-Fluorophenol				
Surrogate Recovery on Nitrobenzene-d5				
Surrogate Recovery on Nitrobenzene-d5				
Surrogate Recovery on 2-Fluorodiphenyl				
Surrogate Recovery on 2,4,6-Tribromophenol				
Surrogate Recovery on Terphenyl-d14				



NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298

Tel: (715) 478-2777 • Fax: (715) 478-3060

NO. 39319

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 721036480

RETURN THIS FORM WITH SAMPLES.

CLIENT: <u>Lamps & Moore</u>		DNR LICENSE		FID	
ADDRESS: <u>Kessel Ct. Suite 201</u>		PROJECT TITLE: <u>ASPH-Asphalt</u>		PROJECT NO.	
CITY: <u>MILWAUKEE</u> STATE: <u>WI</u> ZIP: <u>53211</u>		CONTACT: <u>DAVE TRAINOR</u>		PHONE: <u>(608) 273-2881</u>	

ITEM NO.	NLS LAB NO.	SAMPLE ID	DNR ID	COLLECTION		SAMPLE TYPE	GRAB/COMP.	CONTAINER # PRESERVATIVE				COLLECTION REMARKS
				DATE	TIME			VIAL				
1.	1127	MAIN-1		8/25	1630	SW	G	2				
2.		MAIN-2		8/25	1700			2				
3.		MAIN-3		8/27	1530			2				
4.		MAIN-4		8/27	1330			2				
5.		MAIN-4A		8/27	1315			2				
6.		MAIN-4B		8/27	1300			2				
7.		MAIN-7A		8/26	1700			2				
8.		MAIN-9		8/26	1045			2				
9.		MAIN-9A		8/26	1015			2				
10.		MAIN-12 + WDP		8/27	1450			4				
11.		MAIN-13		8/26	1015			2				
12.		MAIN-14		8/27	1415			2				

SAMPLE TYPE:

SW=surface water
WW=wastewater
GW=groundwater

DW=drinking water
TIS=tissue
AIR=air

PROD=product
SOIL=soil
SED=sediment

describe others

CONTAINER

P = plastic
G = glass
V = glass vial
B = plastic bag

describe others

PRESERVATIVES & PREPARATION

NP = nothing added
S = sulfuric acid
N = nitric acid
Z = zinc acetate
OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid

COLLECTED BY (signature): <u>[Signature]</u>	CUSTODY SEAL NO. (IF ANY)	DATE/TIME
RELINQUISHED BY (signature): <u>[Signature]</u>	RECEIVED BY (signature): <u>[Signature]</u>	DATE/TIME: <u>8/30 6pm</u>
RELINQUISHED BY (signature):	RECEIVED BY (signature):	DATE/TIME:
DISPATCHED BY (signature):	METHOD OF TRANSPORT:	DATE/TIME:

RECEIVED AT NLS BY (signature): <u>[Signature]</u>	DATE/TIME: <u>8/31/99 10:00</u>	CONDITION: <u>Good</u>	TEMP: <u>71°F</u>
SEAL INTACT: <input type="checkbox"/> YES <input type="checkbox"/> NO	SEAL: <u>[Signature]</u>	REMARKS & OTHER INFORMATION: <u>HOLD samples to be recollected.</u>	
<u>UPS 8/30 + Metals awaiting rec'd warm - in 8-30-99. Dave Trainor put these on hold today. 8-31-99</u>			

1. TO MEET REGULATORY REQUIREMENTS, THIS FORM MUST BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, NOT PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

DUPLICATE COPY

**NORTHERN LAKE SERVICE, INC.**

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298

Tel: (715) 478-2777 • Fax: (715) 478-3060

NO. 39317

**SAMPLE COLLECTION AND
CHAIN OF CUSTODY RECORD**

Wisconsin Lab Cert. No. 721029490

RETURN THIS FORM WITH SAMPLES.

DNR LICENSE		FID	
CLIENT <i>Dames & Moore</i>		PROJECT TITLE <i>NSP-Ashland</i>	
ADDRESS <i>25 Kessel Ct Suite 201</i>		PROJECT NO. <i>05644-088</i>	P.O. NO.
CITY <i>Madison, WI</i>	STATE <i>WI</i>	ZIP <i>53711</i>	CONTACT <i>Dave Trainor</i>
		PHONE <i>(608) 273-2886</i>	

ITEM NO.	NLS LAB NO.	SAMPLE ID	DNR ID	COLLECTION		SAMPLE TYPE	GRAB/COMP.	CONTAINER/PRESERVATIVE				COLLECTION REMARKS
				DATE	TIME			CONT.	PRES.	OTHER	OTHER	
1.	741	MIN-16		8/28	1140	GIN	G	T	I	I	Z	
2.	742	MIN-17		8/28	1230							
3.	743	MIN-17A		8/28	1245							
4.	744											
5.												
6.												
7.												
8.												
9.												
10.												
11.												
12.												

SAMPLE TYPE:

SW=surface water
WW=wastewater
GW=groundwaterDW=drinking water
TIS=tissue
AIR=airPROD=product
SOIL=soil
SED=sediment

describe others

CONTAINER

P = plastic
G = glass
V = glass vial
B = plastic bag

describe others

PRESERVATIVES & PREPARATION

NP = nothing added
S = sulfuric acid
N = nitric acid
Z = zinc acetate
OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid

COLLECTED BY (signature)

CUSTODY SEAL NO. (IF ANY) DATE/TIME

RELINQUISHED BY (signature)

RECEIVED BY (signature)

DATE/TIME

RELINQUISHED BY (signature)

RECEIVED BY (signature)

DATE/TIME

DISPATCHED BY (signature)

METHOD OF TRANSPORT

DATE/TIME

RECEIVED AT NLS BY (signature)

DATE/TIME

CONDITION

SEAL INTACT

☐ YES ☐ NO

SEAL

REMARKS & OTHER INFORMATION

IMPORTANT:

1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

DUPLICATE COPY

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP
Project Title: 05644-008

ANALYTICAL REPORT

WIS. LAB CERT. NO. 721026460

PAGE: 1

NLS PROJECT# 50055

NLS CUST# 8098

Sample ID: MW-3

NLS#: 211206

Ref Line 1 of COC 39588 Description: MW-3

Additional Comments: Metals analysis performed at 10-fold dilution due to foaming.

Reported: 09/29/99

Collected: 09/02/99 Received: 09/03/99

Parameter

Arsenic, dis. as As by ICP	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Chromium, dis. as Cr by ICP	ND	ug/L	4.2	150	SW846 6010	09/29/99	721026460
Copper, dis. as Cu by ICP	ND	ug/L	4.2	15	SW846 6010	09/29/99	721026460
Cyanide, tot. (distilled) as CN	3.1	mg/L	4.7	17	SW846 6010	09/29/99	721026460
Iron, dis. as Fe by ICP	9.7	ug/L	0.064	0.21	EPA 335.4	09/13/99	721026460
Lead, dis. as Pb by ICP	ND	ug/L	0.010	0.035	SW846 6010	09/29/99	721026460
Nickel, dis. as Ni by ICP	ND	ug/L	14	51	SW846 6010	09/29/99	721026460
Zinc, dis. as Zn by ICP	200	ug/L	6.6	23	SW846 6010	09/29/99	721026460
VOCs (water) by EPA 8021	see attached				SW846 8021	09/16/99	721026460
Base/Neutral/Acid Extraction	yes				SW846 3510	09/03/99	721026460
Semivolatile GC/MS by 8270C	see attached				SW846 8270C	09/10/99	721026460

Additional Comments: 2,4-Dimethylphenol and pyrene had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026-660

ANALYTICAL REPORT

PAGE: 2 NLS PROJECT# 50055

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

NLS CUST# 8098

Project Description: NSP
Project Title: 05544-008

Sample ID: MM-4 NLS#: 211207
Ref: Line 2 of COC 39548 Description: MM-4
Collected: 09/02/99 Received: 09/03/99 Reported: 09/29/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	< 13 >	ug/L	4.2	15	SW846 6010	09/29/99	721026460
Chromium, dis. as Cr by ICP	< 0.84 >	ug/L	0.42	1.5	SW846 6010	09/29/99	721026460
Copper, dis. as Cu by ICP	4.1	ug/L	0.47	1.7	SW846 6010	09/29/99	721026460
Cyanide, tot. (distilled) as CN	0.056	mg/L	0.0032	0.011	EPA 335.4	09/13/99	721026460
Iron, dis. as Fe by ICP	1.6	mg/L	0.0010	0.0035	SW846 6010	09/29/99	721026460
Lead, dis. as Pb by ICP	ND	ug/L	1.4	5.1	SW846 6010	09/29/99	721026460
Nickel, dis. as Ni by ICP	< 0.93 >	ug/L	0.66	2.3	SW846 6010	09/29/99	721026460
Zinc, dis. as Zn by ICP	190	ug/L	12	12	SW846 6010	09/15/99	721026460
VOCs (water) by EPA 8021	see attached				SW846 8021	09/03/99	721026460
Base/Neutral/Acid Extraction	yes				SW846 1510	09/11/99	721026460
Semivolatile GC/MS by 8270C	see attached				8270C		

Additional Comments: 2,4-Dimethylphenol and pyrene had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

PAGE: 3

NLS PROJECT# 50055

NLS CUST# 8098

Project Description: NSP
Project Title: 05644-008

Sample ID: MW-4 Dup NLS#: 211208
Ref. Line 3 of COC 39588 Description: MW-4 Dup
Collected: 09/02/99 Received: 09/03/99 Reported: 09/29/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SM846 6010	09/29/99	721026460
Chromium, dis. as Cr by ICP	< 1.1	ug/L	0.42	1.5	SM846 6010	09/29/99	721026460
Copper, dis. as Cu by ICP	1.9	ug/L	0.47	1.7	SM846 6010	09/29/99	721026460
Cyanide, tot. (distilled) as CN	0.038	mg/L	0.0032	0.011	EPA 335.4	09/09/99	721026460
Iron, dis. as Fe by ICP	0.29	mg/L	0.0010	0.0035	SM846 6010	09/29/99	721026460
Lead, dis. as Pb by ICP	ND	ug/L	1.4	5.1	SM846 6010	09/29/99	721026460
Nickel, dis. as Ni by ICP	< 1.5	ug/L	0.66	2.3	SM846 6010	09/29/99	721026460
Zinc, dis. as Zn by ICP	110	ug/L	12	12	SM846 6010	09/29/99	721026460
VOCs (water) by EPA 8021	see attached				SM846 6010	09/15/99	721026460
Base/Neutral/Acid Extraction	yes				SM846 3510	09/03/99	721026460
Semivolatile/GC/MS by 8270C	see attached				SM846 8270C	09/11/99	721026460

Additional Comments: 2,4-Dimethylphenol and pyrene had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
 Analytical Laboratory and Environmental Services
 400 North Lake Avenue - Cranston, WI 54520
 Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

Client:

Dames & Moore
 Attn: Dave Trainor
 25 Kessel Court
 Suite 201
 Madison, WI 53711

PAGE: 4

NLS PROJECT# 50055
 NLS CUST# 8098

Project Description: NSP
 Project Title: 05644-008

Sample ID: MW-4A NLS#: 211209
 Ref. Line 4 of COC 39588 Description: MW-4A
 Collected: 09/02/99 Received: 09/03/99 Reported: 09/29/99

Parameter	Result	Units	LOD	LOG	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SM846 6010	09/29/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SM846 6010	09/29/99	721026460
Copper, dis. as Cu by ICP	ND	ug/L	0.47	1.7	SM846 6010	09/29/99	721026460
Cyanide, tot. (distilled) as CN	0.053	mg/L	0.0032	0.011	EPA 335.4	09/09/99	721026460
Iron, dis. as Fe by ICP	1.5	mg/L	0.0010	0.0035	SM846 6010	09/29/99	721026460
Lead, dis. as Pb by ICP	ND	ug/L	1.4	5.1	SM846 6010	09/29/99	721026460
Nickel, dis. as Ni by ICP	ND	ug/L	0.66	2.3	SM846 6010	09/29/99	721026460
Zinc, dis. as Zn by ICP	20	ug/L	12	12	SM846 6010	09/29/99	721026460
VOCs (water) by EPA 8021	see attached				SM846 8021	09/16/99	721026460
Base/Neutral/Acid Extraction	yes				SM846 3510	09/03/99	721026460
Semivolatile GC/MS by 8270C	see attached				SM846 8270C	09/11/99	721026460

Additional Comments: 2,4-Dimethylphenol, 2-methylphenol, 4-methylphenol and pyrene had low recovery in the control, spike and duplicate. Naphthalene concentration should be considered an estimate because the value exceeds the high end of the calibration curve.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 5 NLS PROJECT# 50055

NLS CUST# 8098

Client: Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP
Project Title: 05644-008

Sample ID: MW-4B NLS#: 211210
Ref. Line 5 of COC 39588 Description: MW-4B
Collected: 09/02/99 Received: 09/03/99 Reported: 09/29/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/29/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SW846 6010	09/29/99	721026460
Copper, dis. as Cu by ICP	14	ug/L	0.47	1.7	SW846 6010	09/29/99	721026460
Cyanide, tot. (distilled) as CN	ND	mg/L	0.0032	0.011	EPA 335.4	09/09/99	721026460
Iron, dis. as Fe by ICP	0.033	mg/L	0.0010	0.0035	SW846 6010	09/29/99	721026460
Lead, dis. as Pb by ICP	ND	ug/L	1.4	5.1	SW846 6010	09/29/99	721026460
Nickel, dis. as Ni by ICP	3.0	ug/L	0.66	2.3	SW846 6010	09/29/99	721026460
Zinc, dis. as Zn by ICP	180	ug/L	12	12	SW846 6010	09/29/99	721026460
VOCs (water) by EPA 8021	see attached				SW846 8021	09/16/99	721026460
Base/Neutral/Acid Extraction	see attached				SW846 3510	09/03/99	721026460
Semivolatile Gr/MS by 8270C	see attached				SW846 8270C	09/11/99	721026460

Additional Comments: 2,4-Dimethylphenol and pyrene had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 6 NLS PROJECT# 50055

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

NLS CUST# 8098

Project Description: NSP
Project Title: 05644-008

Sample ID: MM-7A NLS#: 211211
Ref. Line 6 of COC 39508 Description: MM-7A
Additional Comments: Metals analysis performed at 10-fold dilution due to foaming and high organic content.
Collected: 09/02/99 Received: 09/03/99 Reported: 09/29/99

Parameter	Result	Units	LOD	LOG	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	42	150	SW846 6010	09/29/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	4.2	15	SW846 6010	09/29/99	721026460
Copper, dis. as Cu by ICP	ND	ug/L	4.7	17	SW846 6010	09/29/99	721026460
Cyanide, tot. (distilled) as CN	ND	mg/L	0.0032	0.011	EPA 335.4	09/09/99	721026460
Iron, dis. as Fe by ICP	0.11	mg/L	0.010	0.035	SW846 6010	09/29/99	721026460
Lead, dis. as Pb by ICP	ND	ug/L	14	51	SW846 6010	09/29/99	721026460
Nickel, dis. as Ni by ICP	ND	ug/L	6.6	23	SW846 6010	09/29/99	721026460
Zinc, dis. as Zn by ICP	ND	ug/L	120	120	SW846 6010	09/16/99	721026460
VOCs (water) by EPA 8021	see attached				SW846 8021	09/16/99	721026460
Base/Neutral/Acid Extraction	yes				SW846 3510	09/03/99	721026460
Semivolatile GC/MS by 8270C	see attached				8270C	09/11/99	721026460

Additional Comments: 2,4-Dimethylphenol and pyrene had low recovery in the control, spike and duplicate. Naphthalene concentration should be considered an estimate because the value exceeds the high end of the calibration curve.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Grandton, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 7

NLS PROJECT# 50055

NLS CUST# 8098

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP
Project Title: 05644-008

Sample ID: MW-12 **NLS#:** 211212
Ref. Line 7 of COC 39588 **Description:** MW-12
Collected: 09/02/99 **Received:** 09/03/99 **Reported:** 09/29/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/29/99 721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SW846 6010	09/29/99 721026460
Copper, dis. as Cu by ICP	7.6	ug/L	0.47	1.7	SW846 6010	09/29/99 721026460
Cyanide, tot. (distilled) as CN	0.033	mg/L	0.0032	0.011	EPA 335.4	09/09/99 721026460
Iron, dis. as Fe by ICP	0.043	mg/L	0.0010	0.0035	SW846 6010	09/29/99 721026460
Lead, dis. as Pb by ICP	< 1.6 >	ug/L	1.4	5.1	SW846 6010	09/29/99 721026460
Nickel, dis. as Ni by ICP	3.0	ug/L	0.66	2.3	SW846 6010	09/29/99 721026460
Zinc, dis. as Zn by ICP	28	ug/L	12	12	SW846 6010	09/16/99 721026460
VOCs (water) by EPA 8021	see attached				SW846 8021	09/03/99 721026460
Base/Neutral/Acid Extraction	yes				SW846 3510	09/11/99 721026460
Semivolatile GC/MS by 8270C	see attached				SW846 8270C	

Additional Comments: 2,4-Dimethylphenol and pyrene had low recovery in the control, spike and duplicate. Naphthalene concentration should be considered an estimate because the value exceeds the high end of the calibration curve.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranford, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3660

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 8 NLS PROJECT# 50055

NLS CUST# 8098

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP
Project Title: 05644-008

Sample ID: MW14 NLS#: 211213
Ref. Line 8 of COC 39588 Description: MW14
Collected: 09/02/99 Received: 09/03/99 Reported: 09/29/99

Parameter	Result	Units	LOD	LOG	Method	Analyzed Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/29/99 721026460
Chromium, dis. as Cr by ICP	< 0.45	ug/L	0.42	1.5	SW846 6010	09/29/99 721026460
Copper, dis. as Cu by ICP	ND	ug/L	0.47	1.7	SW846 6010	09/29/99 721026460
Cyanide, tot. (distilled) as CN	0.16	mg/L	0.0032	0.011	EPA 335.4	09/09/99 721026460
Iron, dis. as Fe by ICP	22	mg/L	0.0010	0.0033	SW846 6010	09/29/99 721026460
Lead, dis. as Pb by ICP	ND	ug/L	1.4	5.1	SW846 6010	09/29/99 721026460
Nickel, dis. as Ni by ICP	ND	ug/L	0.66	2.3	SW846 6010	09/29/99 721026460
Zinc, dis. as Zn by ICP	110	ug/L	12	12	SW846 8021	09/16/99 721026460
VOCs (water) by EPA 8021	see attached					
Base/Neutral/Acid Extraction	Additional Comments:	Estimated concentration for benzene.			SW846 3510	09/03/99 721026460
Semivolatile GC/MS by 8270C	Yes				SW846	
	see attached				8270C	09/17/99 721026460

Additional Comments: 2,4-Dimethylphenol and pyrene had low recovery in the control, spike and duplicate. Naphthalene concentration should be considered an estimate because the value exceeds the high end of the calibration curve.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP
Project Title: 05644-008

ANALYTICAL REPORT

PAGE: 9

NLS PROJECT# 50055
NLS CUST# 8098

WIS. LAB CERT. NO. 721026460

Sample ID: Trip Blank

NLS#: 211214

Ref: Line 9 of COC 38588 Description: Trip Blank
Collected: 09/02/99 Received: 09/03/99 Reported: 09/29/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed Lab
VOCs (water) by EPA 8021	see attached				SW846 8021	09/16/99 721026460

Values in brackets represent results greater than the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation".
Results greater than the LOQ are considered to be in the region of "Certain Quantitation".

LOD = Limit of Detection
DMB = Dry Weight Basis
LOQ = Limit of Quantitation
NA = Not Applicable

ND = Not Detected
%DMB = (mg/kg DMB)/10000

Reviewed by: *Alvin R. Crisp*

Authorized by:
R. T. Krueger
Laboratory Manager

Customer: Dames & Moore
Project Description: NSP Project Title: 05644-008
Northern Lake Service Project Number: 50055

Analyte	211206 MW-3			
Name	ug/L	DILUTION	LOD	LOQ
Benzene	1.7	2	0.26	0.89
n-Butylbenzene	ND	2	0.30	1.0
sec-Butylbenzene	ND	2	0.28	0.95
Isopropylbenzene	< 0.38 >	2	0.27	0.92
p-Isopropyltoluene	ND	2	0.27	0.93
Naphthalene	14	2	0.34	1.2
n-Propylbenzene	< 0.24 >	2	0.21	0.72
ortho-Xylene	1.6	2	0.23	0.81
Toluene	0.99	2	0.26	0.90
1,2,4-Trimethylbenzene	1.8	2	0.24	0.83
1,3,5-Trimethylbenzene	< 0.68 >	2	0.25	0.86
meta,pata-Xylene	< 0.96 >	2	0.50	1.7

Surrogate Recovery on 4-Bromofluorobenzene = 100 %
Surrogate Recovery on 1,2-Dichlorobenzene-d4 = 93.0 %

ANALYTICAL RESULTS: 8021 J-13 by Method 824.2 (Column 1)

Page: 2

Customer: Dames & Moore
Project Description: NSP Project Title: 05644-008
Northern Lake Service Project Number: 50055

Analyte	211207 MW-4	DILUTION	LOD	100
Name	ug/L	FACTOR	ug/l	ug/L
benzene	ND	1000	130	440
n-Butylbenzene	ND	1000	150	520
sec-Butylbenzene	ND	1000	140	480
Isopropylbenzene	< 140 >	1000	130	460
p-Isopropyltoluene	ND	1000	170	580
Naphthalene	6400	1000	100	360
n-Propylbenzene	ND	1000	120	400
ortho-Xylene	1400	1000	130	450
Toluene	3200	1000	120	420
1,2,4-Trimethylbenzene	720	1000	120	430
1,3,5-Trimethylbenzene	490	1000	120	430
methyl,para Xylene	2500	1000	250	860

Surrogate Recovery on 4-Bromofluorobenzene = 111 %
Surrogate Recovery on 1,2-Dibromobenzene = 108 %

ANALYTICAL RESULTS: 8021 Just by Method 524.2 (Saturn 3)

Page: 3

Customer: Dames & Moore
Project Description: NEP Project Title: 01644 000
Mother-in-Lake Review: Project Number: 50005

Analyte	211208 MW-4 Dup	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
Benzene	3400	1000	130	520
n-Butylbenzene	ND	1000	150	480
sec-Butylbenzene	ND	1000	140	480
Isopropyltoluene	ND	1000	130	460
p-Isopropyltoluene	ND	1000	130	460
Naphthalene	4600	1000	170	580
n-Propylbenzene	ND	1000	100	360
ortho-Xylene	1200	1000	120	400
Toluene	2900	1000	130	450
1,2,4-Trimethylbenzene	440	1000	120	420
1,3,5-Trimethylbenzene	< 280	1000	120	430
meta,para-Xylene	2000	1000	250	860
Surrogate Recovery on 4-Bromofluorobenzene = 100 %				
Surrogate Recovery on 1,2-Dichlorobenzene-d4 = 102 %				

Customer: Dams & Moore
Project Description: NSP Project Title: 05644-008
Northern Lake Service Project Number: 50055

Analyte	211209 MW 4A	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
Benzene	14000	1000	130	440
n-Butylbenzene	ND	500	76	260
sec-Butylbenzene	ND	500	69	240
Isopropylbenzene	ND	500	66	230
p-Propyltoluene	ND	500	67	230
Naphthalene	8600	500	84	290
n-Propylbenzene	ND	500	52	180
ortho-Xylene	1500	500	58	200
Toluene	9300	500	65	220
1,2,4-Trimethylbenzene	540	500	60	210
1,3,5-Trimethylbenzene	< 170	500	62	210
meta-para-Xylene	> 3100	500	130	430
Surrogate Recovery on 4-Bromofluorobenzene = 106 %				
Surrogate Recovery on 1,2-Dichlorobenzene-d4 = 100 %				

Customer: James & Moore
 Project Description: NSP Project Title: 05644-008
 Northern Lake Service Project Number: 50055

Analyte Name	211210 NW-4B ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Benzene	76	10	1.3	4.4
n-Butylbenzene	ND	10	1.5	5.2
sec-Butylbenzene	ND	10	1.4	4.8
Isopropylbenzene	ND	10	1.3	4.6
p-Isopropyltoluene	ND	10	1.3	4.6
Naphthalene	ND	10	1.7	5.8
n-Propylbenzene	41	10	1.0	1.6
o-Propylbenzene	7.3	10	1.2	4.0
toluene	41	10	1.3	4.5
1,2,4-Trimethylbenzene	< 2.1 >	10	1.2	4.2
1,3,5-Trimethylbenzene	< 2.2 >	10	1.2	4.3
meta,para-Xylene	12	10	2.5	8.6
Surrogate Recovery on 4-Bromofluorobenzene - 98.0 %				
Surrogate Recovery on 1,2-Dichlorobenzene-d4 - 95.0 %				

Customer: James & Moore
 Project Description: NSP Project Title: 05644-008
 Northern Lake Service Project Number: 50055

Analyte	211211 MW-7A	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
Benzene	2900	500	64	220
n-Butylbenzene	ND	500	76	260
sec Butylbenzene	ND	500	69	240
Isopropylbenzene	ND	500	66	230
p-Isopropyltoluene	ND	500	67	230
Naphthalene	4500	500	84	290
n-Propylbenzene	ND	500	52	180
ortho-Xylene	780	500	58	200
Toluene	4600	500	65	220
1,2,4 Trimethylbenzene	360	500	60	210
1,3,5 Trimethylbenzene	< 120	500	62	210
methylstyrene	1700	500	130	430

Surrogate Recovery on 4 Bromofluorobenzene = 105 %
 Surrogate Recovery on 1,2-Dichlorobenzene-d4 = 99.0 %

ANALYTICAL RESULTS: 8021 11st by Method 824.2 (Saturn 3)

Page: 7

Customer: Dawns & Moore
Project Description: NSP Project Title: 05644-008
Northern Lake Service Project Number: 50055

Analyte	211212 MW 12	DILUTION	LOD	100
Name	ug/L	FACTOR	ug/L	ug/L
Benzene	120	50	6.4	22
n-Butylbenzene	ND	50	7.6	26
sec-Butylbenzene	ND	50	6.9	24
Isopropylbenzene	ND	50	6.6	23
p-Isopropyltoluene	ND	50	6.7	23
Naphthalene	570	50	8.4	29
n-Propylbenzene	ND	50	5.2	18
ortho-Xylene	34	50	5.8	20
Toluene	< 9.4 >	50	6.5	22
1,2,4-Trimethylbenzene	< 18 >	50	6.0	21
1,3,5-Trimethylbenzene	< 9.8 >	50	6.2	21
meta,para-Xylene	< 25 >	50	13	43

Surrogate Recovery on 4-Bromofluorobenzene = 109 %
Surrogate Recovery on 1,2-Dichlorobenzene-d4 = 107 %

ANALYTICAL RESULTS: 8021 list by Method 524.2 (Column 1)
Page: 8

Customer: DAWG & MORT
Project Description: NSP Project Title: 05644 008
Northern Lake Service Project Number: 50055

Analyte	211213 MW14	DILUTION	LOD	160
Name	mg/l.	FACTOR	mg/l.	mg/l.
Benzene	11000	500	64	220
n-Butylbenzene	ND	500	76	260
sec-Butylbenzene	ND	500	69	240
Isopropylbenzene	< 87 >	500	66	230
p-Isopropyltoluene	ND	500	67	230
Naphthalene	9000	500	84	290
n-Propylbenzene	ND	500	52	180
ortho-Xylene	1000	500	58	200
Toluene	7300	500	65	220
1,2,4-Trimethylbenzene	390	500	60	210
1,3,5-Trimethylbenzene	< 130 >	500	62	210
meta,para-Xylene	1800	500	130	430
Surrogate Recovery on 4-Bromofluorobenzene = 100 %				
Surrogate Recovery on 1,2-Dichlorobenzene-d4 = 100 %				

Customer: Jansen & Moore
 Project Description: NSP Project Title: 05644-008
 Northern Lake Service Project Number: 50055

Analyte	211214 Trip Blank	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
Benzene	ND	1	0.13	0.44
n-Butylbenzene	ND	1	0.15	0.52
sec-Butylbenzene	ND	1	0.14	0.48
Isopropyltoluene	ND	1	0.13	0.46
p-Isopropyltoluene	ND	1	0.17	0.58
Naphthalene	ND	1	0.10	0.36
n-Propylbenzene	ND	1	0.12	0.40
ortho-Xylene	ND	1	0.13	0.45
Toluene	ND	1	0.12	0.42
1,2,4-Trimethylbenzene	ND	1	0.12	0.43
1,3,5-Trimethylbenzene	ND	1	0.12	0.43
meta,para-Xylene	ND	1	0.12	0.43
Surrogate Recovery on 4-Bromofluorobenzene = 100 %				
Surrogate Recovery on 1,2-Dichlorobenzene-d4 = 95.0 %				
			0.25	0.86

ANALYTICAL RESULTS: SEMI-VOLATILE ORGANIC COMPOUNDS BY ERM 8270C

Page: 1

Customer: James & Moore
Project Description: NSP Project Title: 05644-008
Northern Lake Service Project Number: 50055

Analyte Name	211206 MW-3 ug/L	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Acenaphthene	< 3.5	1	1.3	4.5
Acenaphthylene	7.0	1	1.4	4.5
Anthracene	3.1	1	1.2	3.7
Benzo[a]anthracene	ND	1	0.76	2.1
Benzo[a]pyrene	ND	1	1.2	4.0
Benzo[b]fluoranthene	ND	1	0.64	2.1
Benzo[g,h,i]perylene	ND	1	1.2	3.9
Benzo[k]fluoranthene	ND	1	1.3	4.4
Butylbenzylphthalate	ND	1	1.1	3.5
Chrysene	ND	1	0.68	2.2
Di n Butylphthalate	ND	1	1.6	5.5
Dibenz[a,h]anthracene	ND	1	0.69	2.2
2,4 Dimethylphenol	ND	1	3.1	10
Fluoranthene	5.0	1	0.67	2.2
Fluorene	5.9	1	1.1	3.6
Indeno[1,2,3-cd]pyrene	ND	1	0.69	2.2
2-Methylnaphthalene	ND	1	1.4	4.8
2-Methylphenol	ND	1	1.3	4.4
3 & 4 Methylphenol	ND	1	1.5	5.0
Naphthalene	14	1	1.5	5.2
Phenanthrene	22	1	0.65	2.1
Phenol	ND	1	0.76	2.5
Pyrene	< 3.9	1	1.3	4.3
Surrogate Recovery on 2-Fluorophenol = 68.5 %				
Surrogate Recovery on Phenol-d5 = 48.0 %				
Surrogate Recovery on Nitrobenzene-d5 = 68.3 %				
Surrogate Recovery on 2-Fluorobiphenyl = 89.3 %				
Surrogate Recovery on 2,4,6-Tribromophenol = 102 %				
Surrogate Recovery on Terphenyl-d14 = 109 %				

ANALYTICAL RESULTS - Semi Volatile Organic Compounds by EPA METHOD

Page: 2

Client: LAMSON & MOORE
 Project Description: NSP Project Title: 05644-008
 Northern Lake Service Project Number: 50055

Analyte Name	211207 MW-4	DILUTION FACTOR	LOD ug/L	LOQ ug/L
	ug/L < 200 >			
Acenaphthene	ND	100	130	450
Acenaphthylene	ND	100	140	450
Anthracene	ND	100	120	370
Benzo[a]anthracene	ND	100	76	210
Benzo[a]pyrene	ND	100	120	400
Benzo[b]fluoranthene	ND	100	64	210
Benzo[g,h,i]perylene	ND	100	120	390
Benzo[k]fluoranthene	ND	100	130	440
Butylbenzophthalate	ND	100	110	350
Chrysene	ND	100	68	220
Di-n-butylphthalate	ND	100	160	550
Dibenz[a,h]anthracene	ND	100	69	220
2,4-Dimethylphenol	ND	100	310	1000
Fluoranthene	ND	100	67	220
Fluorene	ND	100	110	360
Indeno[1,2,3-cd]pyrene	ND	100	69	220
2-Methylanthracene	620	100	140	480
2-Methylphenol	ND	100	130	440
3 & 4-Methylphenol	ND	100	150	500
Naphthalene	4500	100	150	520
Phenanthrene	ND	100	65	210
Phenol	ND	100	76	250
Pyrene	ND	100	130	430

Customer: Dames & Moore
 Project Description: NSP Project Title: 05644-008
 Northern Lake Service Project Number: 50055

Analyte	211208 MW 4 Dup	DILUTION	10P	100
Name	ug/L	FACTOR	ug/L	ug/L
Acenaphthene	ND	103	140	460
Acenaphthylene	ND	103	140	460
Anthracene	ND	103	120	390
Benzo[a]anthracene	ND	103	78	210
Benzo[a]pyrene	ND	103	120	420
Benzo[b]fluoranthene	ND	103	66	210
Benzo[g,h,i]perylene	ND	103	120	400
Benzo[k]fluoranthene	ND	103	140	450
Butylbenzylphthalate	ND	103	110	360
Chrysene	ND	103	70	220
Di-n-butylphthalate	ND	103	170	560
Dibenz[a,h]anthracene	ND	103	71	230
2,4-Dimethylphenol	ND	103	320	1100
Fluoranthene	ND	103	69	220
Fluorene	ND	103	110	370
Indeno[1,2,3-cd]pyrene	ND	103	71	230
2-Methylnaphthalene	550	103	150	500
2-Methylphenol	ND	103	130	450
3,4,4-Methylphenol	ND	103	150	520
Naphthalene	3900	103	160	530
Phenanthrene	420	103	67	210
Phenol	ND	103	78	260
Pyrene	ND	103	130	440

Customer: James & Moore
Project Description: NSP Project Title: 05644-008
Northern Lake Service Project Number: 50055

Analyte	211209 MW-4A			
Name	ug/L	DILUTION	LOD	LOQ
Acenaphthene	ND	100	130	450
Acenaphthylene	< 230 >	100	140	450
Anthracene	ND	100	120	370
Benzo[a]anthracene	ND	100	76	210
Benzo[b]fluoranthene	ND	100	120	400
Benzo[g,h,i]perylene	ND	100	64	210
Benzo[k]fluoranthene	ND	100	120	390
Butylbenzylphthalate	ND	100	130	440
Chrysene	ND	100	110	350
Di-n-butylphthalate	ND	100	68	220
Dibenz[a,h]anthracene	ND	100	160	550
2,4-Dimethylphenol	< 580 >	100	69	220
Fluoranthene	ND	100	310	1000
Indeno[1,2,3-cd]pyrene	ND	100	67	220
2-Methylnaphthalene	ND	100	110	360
2-Methylphenol	1200	100	69	220
3 & 4-Methylphenol	< 280 >	100	140	480
Naphthalene	770	100	130	440
Phenanthrene	14000	100	150	500
Phenol	ND	100	150	520
Pyrene	700	100	65	210
	ND	100	76	250
	ND	100	130	430

Customer: James & Moore
 Project Description: NSP Project Title: 05644-008
 Northern Lake Service Project Number: 50055

Analyte	211210 MW-4B				
Name	ug/L	DILUTION	LOD	LOQ	
Acenaphthene	ND	1	1.3	4.5	
Acenaphthylene	6.4	1	1.4	4.5	
Anthracene	ND	1	1.2	3.7	
Benzo[a]anthracene	ND	1	0.76	2.1	
Benzo[a]pyrene	ND	1	1.2	4.0	
Benzo[b]fluoranthene	ND	1	0.64	2.1	
Benzo[g,h,i]perylene	ND	1	1.2	3.9	
Benzo[k]fluoranthene	ND	1	1.3	4.4	
Butylbenzylphthalate	ND	1	1.1	3.5	
Chrysene	ND	1	0.68	2.2	
Di n butylphthalate	ND	1	1.6	5.5	
Dibenz[a,h]anthracene	ND	1	0.69	2.2	
2,4-dimethylphenol	ND	1	3.1	10	
Fluoranthene	ND	1	0.67	2.2	
Indeno[1,2,3-cd]pyrene	ND	1	1.1	3.6	
2-methylnaphthalene	8.2	1	0.69	2.2	
2-methylphenol	ND	1	1.4	4.8	
3,4,4-methylphenol	ND	1	1.3	4.4	
Naphthalene	37	1	1.5	5.0	
Phenanthrene	ND	1	1.5	5.2	
Phenol	ND	1	0.65	2.1	
Pyrene	ND	1	0.76	2.5	
Surrogate Recovery on 2-fluorophenol = 34.2 %					
Surrogate Recovery on Phenol-d5 = 33.4 %					
Surrogate Recovery on Nitrobenzene-d5 = 85.7 %					
Surrogate Recovery on 2-fluorobiphenyl = 86.0 %					
Surrogate Recovery on 2,4,6-tribromophenol = 50.7 %					
Surrogate Recovery on Terphenyl-d14 = 66.5 %					

ANALYTICAL RESULTS Semi Volatile Organic Compounds by EPA 8270C
 Page: 6

Customer: James & Moore
 Project Description: MSP Project Title: 05644-008
 Northern Lake Service Project Number: 50055

Analyte	211211 MM-7A	DILUTION	LOD	LOQ
Name	ug/l.	FACTOR	ug/l.	ug/l.
Acenaphthene	ND	100	130	450
Acenaphthylene	ND	100	140	450
Anthracene	ND	100	120	370
Benzo[a]anthracene	ND	100	76	210
Benzo[a]pyrene	ND	100	120	400
Benzo[b]fluoranthene	ND	100	64	210
Benzo[g,h,i]perylene	ND	100	120	390
Benzo[k]fluoranthene	ND	100	130	440
Butylbenzylphthalate	ND	100	110	350
Chrysene	ND	100	68	220
Di-n-butylphthalate	ND	100	160	550
Dibenz[a,h]anthracene	ND	100	69	220
2,4-Dimethylphenol	ND	100	310	1000
Fluoranthene	ND	100	67	220
Fluoranthene	ND	100	110	160
Indeno[1,2,3-cd]pyrene	ND	100	69	220
2-Methylnaphthalene	720	100	140	480
3-Methylphenol	ND	100	130	440
3,4-Methylphenol	5500	100	150	500
Naphthalene	ND	100	65	520
Phenanthrene	ND	100	76	210
Phenol	ND	100	76	250
Pyrene	ND	100	130	430

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C
Page: 7

CUSTOMER: James & Moore
Project Description: NRP Project Title: 05644 008
Northern Lake Service Project Number: 50055

Analyte	211412 MW 12	DILUTION	LAB	LAB
Name	ug/L	FACTOR	ug/L	ug/L
Acenaphthene	ND	15.38	21	69
Acenaphthylene	ND	15.38	18	58
Anthracene	ND	15.38	12	32
Benzo [a] anthracene	ND	15.38	19	62
Benzo [a] pyrene	ND	15.38	9.8	32
Benzo [b] fluoranthene	ND	15.38	18	60
Benzo [g, h, i] perylene	ND	15.38	20	68
Benzo [k] fluoranthene	ND	15.38	16	54
Butylbenzylphthalate	ND	15.38	10	33
Chrysene	ND	15.38	25	84
Di-n-butylphthalate	ND	15.38	11	34
Dibenzof, h) anthracene	ND	15.38	47	160
2,4 Dimethylphenol	ND	15.38	10	33
Fluoranthene	ND	15.38	17	56
Indeno [1,2,3-cd] pyrene	ND	15.38	11	34
2-Methyl naphthalene	81	15.38	22	74
2 Methylphenol	ND	15.38	20	67
3 & 4 Methylphenol	ND	15.38	23	77
Naphthalene	230	15.38	24	79
Phenanthrene	66	15.38	10	32
Phenol	ND	15.38	12	39
Pyrene	ND	15.38	20	66

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C
Page: 8

Customer: Dames & Moore
Project Description: NSP Project Title: 05644 008
Northern Lake Service Project Number: 50055

Analyte	211213	MM14	DILUTION	LOD	LOQ
Name	ug/L		FACTOR	ug/L	ug/L
Acenaphthene	1500		244	330	1100
Acenaphthylene	1600		244	330	1100
Anthracene	1700		244	290	910
Benzo[a]anthracene	1700		244	190	500
Benzo[a]pyrene	ND		244	300	990
Benzo[b]fluoranthene	ND		244	160	500
Benzo[g,h,i]perylene	ND		244	290	950
Benzo[k]fluoranthene	ND		244	320	1100
Butylbenzylphthalate	ND		244	260	860
Chrysene	ND		244	170	530
Di-n-butylphthalate	ND		244	400	1300
Dibenz[a,h]anthracene	ND		244	170	530
2,4-Dimethylphenol	< 1600	>	244	750	2500
Fluoranthene	1200		244	160	530
Fluorene	1100		244	270	890
Indeno[1,2,3-cd]pyrene	ND		244	170	530
2-Methylnaphthalene	2700		244	350	1200
2-Methylphenol	1400		244	320	1100
3,6,4-Methylphenol	2400		244	370	1200
Naphthalene	9100		244	380	1300
Phenanthrene	1400		244	160	510
Phenol	ND		244	190	620
Pyrene	1200		244	310	1000



NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298

Tel: (715) 478-2777 • Fax: (715) 478-3060

NO. 39588

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 721-2-260

RETURN THIS FORM WITH SAMPLES.

CLIENT <u>Danisco Moore</u>		DNR LICENSE		FID	
ADDRESS <u>251 Kessel Ct #201</u>		PROJECT TITLE <u>NSP</u>		PROJECT NO. <u>05641-050</u>	
CITY <u>Madison, WI</u> STATE <u>53711</u> ZIP <u></u>		CONTACT <u>D. K. K. K.</u>		P.O. NO. <u></u>	
				PHONE <u>(608) 273-2886</u>	

ITEM NO.	NLS LAB NO.	SAMPLE ID	DNR ID	COLLECTION		SAMPLE TYPE	GRAB/COMP.	CONTAINER/PRESERVATIVE				COLLECTION REMARKS
				DATE	TIME			NP	NP	NP	NP	
1		WW-3		9/2	0815	GL	GRAB					
2		WW-4		1	1015							
3		WW-4 DUP		1	1015							
4		WW-4A		1	1030							
5		WW-4B		1	1100							
6		WW-7A		1	1500							
7		WW-12		1	0900							
8		WW-10A		1	1000							
9												
10												
11												
12												

SAMPLE TYPE:

SW=surface water
WW=wastewater
GW=groundwater

DW=drinking water
TIS=tissue
AIR=air

PROD=product
SOIL=soil
SED=sediment

describe others

CONTAINER

P = plastic
G = glass
V = glass vial
B = plastic bag
describe others

PRESERVATIVES & PREPARATION

NP = nothing added
S = sulfuric acid
N = nitric acid
Z = zinc acetate
OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid

COLLECTED BY (signature)

CUSTODY SEAL NO. (IF ANY) DATE/TIME

RELINQUISHED BY (signature)

RECEIVED BY (signature)

DATE/TIME

RELINQUISHED BY (signature)

RECEIVED BY (signature)

DATE/TIME

SPATCHED BY (signature)

METHOD OF TRANSPORT

DATE/TIME

RECEIVED AT NLS BY (signature)

DATE/TIME

CONDITION

TEMP.

ISAL INTACT

☐ YES ☐ NO

SEAL #

REMARKS & OTHER INFORMATION

- IMPORTANT:**
1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED.
 2. PLEASE USE ONE LINE PER SAMPLE. **NOT** PER BOTTLE.
 3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

DUPLICATE COPY

NORTHERN LAKE SERVICE, INC.
 Analytical Laboratory and Environmental Services
 400 North Lake Avenue - Cranston, WI 54520
 Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

Client:

Dames & Moore
 Attn: Dave Trainor
 25 Kessel Court
 Suite 201
 Madison, WI 53711

PAGE: 1 NLS PROJECT# 49903
 NLS CUST# 8098

Project Description: K. Park
 Project Title: 05644-088

Sample ID: MW-2 NET NLS#: 210536
 Rel. Line 1 of COC 39314 Description: MW-2 NET
 Collected: 08/26/99 Received: 08/27/99 Reported: 09/27/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SM846 6010	09/21/99 721026460
Chromium, dis. as Cr by ICP	2.1	ug/L	0.42	1.4	SM846 6010	09/21/99 721026460
Copper, dis. as Cu by ICP	2.0	ug/L	0.47	1.7	SM846 6010	09/21/99 721026460
Cyanide, tot. (distilled) as CN	0.012	mg/L	0.0032	0.011	EPA 335.4	09/01/99 721026460
Iron, dis. as Fe by ICP	3.5	mg/L	0.0010	0.0035	SM846 6010	09/21/99 721026460
Lead, dis. as Pb by ICP	< 2.5 >	ug/L	1.4	5.1	SM846 6010	09/21/99 721026460
Nickel, dis. as Ni by ICP	4.0	ug/L	0.66	2.3	SM846 6010	09/21/99 721026460
Zinc, dis. as Zn by ICP	13	ug/L	12	12	SM846 6010	09/21/99 721026460
Base/Neutral/Acid Extraction	yes				SM846 3510	08/28/99 721026460
Semivolatile GC/MS by 8270C	see attached				SM846	09/17/99 721026460

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Grandin, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: K. Park
Project Title: 05644-088

PAGE: 2 **NLS PROJECT#** 49903

NLS CUST# 8098

Sample ID: MW-2 NET Dup **NLS#:** 210537
Ref. Line 2 of COC 39314 **Description:** MW-2 NET Dup
Collected: 08/26/99 **Received:** 08/27/99 **Reported:** 09/27/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/21/99 721026460
Chromium, dis. as Cr by ICP	2.4	ug/L	0.42	1.5	SW846 6010	09/21/99 721026460
Copper, dis. as Cu by ICP	2.6	ug/L	0.47	1.7	SW846 6010	09/21/99 721026460
Cyanide, tot. (distilled) as CN	0.012	mg/L	0.0032	0.011	EPA 335.4	09/01/99 721026460
Iron, dis. as Fe by ICP	3.5	mg/L	0.0010	0.0035	SW846 6010	09/21/99 721026460
Lead, dis. as Pb by ICP	3.8	ug/L	1.4	5.1	SW846 6010	09/21/99 721026460
Nickel, dis. as Ni by ICP	3.5	ug/L	0.66	2.3	SW846 6010	09/21/99 721026460
Zinc, dis. as Zn by ICP	42	ug/L	12	12	SW846 6010	09/21/99 721026460
Base/Neutral/Acid Extraction	Yes				SW846 3510	08/28/99 721026460
Semivolatile GC/MS by 8270C	see attached				SW846	09/17/99 721026460

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 3 NLS PROJECT# 49903
NLS CUST# 8098

Client: **Dames & Moore**
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: K. Park **M11**
Project Title: 05644-088

MW-23 NET
Sample ID: ~~MW-23 NET~~ NLS#: 210538
Ref. Line 3 of COC 39314 Description: MW-2A NET
Collected: 08/26/99 Received: 08/27/99 Reported: 09/27/99

Parameter
Arsenic, dis. as As by ICP
Chromium, dis. as Cr by ICP
Copper, dis. as Cu by ICP
Cyanide, tot. (distilled) as CN
Iron, dis. as Fe by ICP
Lead, dis. as Pb by ICP
Nickel, dis. as Ni by ICP
Zinc, dis. as Zn by ICP
Base/Neutral/Acid Extraction
Semi-volatile GC/MS by 8270C

Result	Units	LOD	LOG	Method	Analyzed Lab
ND	ug/L	4.2	15	SW846 6010	09/21/99 721026460
ND	ug/L	0.42	1.5	SW846 6010	09/21/99 721026460
ND	ug/L	0.47	1.7	SW846 6010	09/21/99 721026460
0.020	mg/L	0.0032	0.011	EPA 335.4	09/01/99 721026460
0.19	ug/L	0.0010	0.0035	SW846 6010	09/21/99 721026460
ND	ug/L	1.4	5.1	SW846 6010	09/21/99 721026460
< 1.0 >	ug/L	0.66	2.3	SW846 6010	09/21/99 721026460
ND	ug/L	12	12	SW846 6010	08/28/99 721026460
yes				SW846 3510	09/11/99 721026460
see attached				8270C	

Additional Comments: 2,4-Dimethylphenol, 2-methylphenol & 4-methylphenol had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Grandin, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

PAGE: 4 NLS PROJECT# 49903

NLS CUST# 8098

Project Description: K Park
Project Title: 05541-088

Sample ID: MW-24 NET NLS#: 210539
Ref. Line 4 of COT 39314 Description: MW-2B NET
Collected: 08/26/99 Received: 08/27/99 Reported: 09/27/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SM846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	< 0.44 >	ug/L	0.42	1.5	SM846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	< 0.52 >	ug/L	0.47	1.7	SM846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	ND	mg/L	0.0032	0.011	EPA 335.4	09/01/99	721026460
Iron, dis. as Fe by ICP	0.053	mg/L	0.0010	0.0035	SM846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	ND	ug/L	1.4	5.1	SM846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	< 0.80 >	ug/L	0.66	2.3	SM846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	ND	ug/L	12	12	SM846 6010	09/21/99	721026460
Base/Neutral/Acid Extraction	yes				SM846 3510	08/28/99	721026460
Semivolatile GC/MS by 8270C	see attached				SM846	09/03/99	721026460

Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

PAGE: 5 NLS PROJECT# 49903

NLS CUST# 8098

Project Description: K. Park
Project Title: 05644-088

Sample ID: MW-2 NET **NLS#:** 210745
Ref. Line 1 of COC Description: MW-2 NET
Collected: 08/26/99 **Received:** 08/31/99 **Reported:** 09/27/99

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>LOD</u>	<u>LOQ</u>	<u>Method</u>	<u>Analyzed Lab</u>
VOCs (water) by EPA 8021	see attached				SW846, 8021	09/08/99 721026460

Sample ID: MW-2 NET Dup **NLS#:** 210746
Ref. Line 2 of COC Description: MW-2 NET Dup
Collected: 08/26/99 **Received:** 08/31/99 **Reported:** 09/27/99

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>LOD</u>	<u>LOQ</u>	<u>Method</u>	<u>Analyzed Lab</u>
VOCs (water) by EPA 8021	see attached				SW846 8021	09/08/99 721026460

Sample ID: MW-2A NET **NLS#:** 210747
Ref. Line 3 of COC Description: MW-2A NET
Collected: 08/26/99 **Received:** 08/31/99 **Reported:** 09/27/99

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>LOD</u>	<u>LOQ</u>	<u>Method</u>	<u>Analyzed Lab</u>
VOCs (water) by EPA 8021	see attached				SW846 8021	09/08/99 721026460

NORTHERN LAKE SERVICE, INC.
 Analytical Laboratory and Environmental Services
 400 North Lake Avenue - Grandun, WI 54520
 Tel: (715) 478-2777 Fax: (715) 478-3060

Client:

Dames & Moore
 Attn: Dave Trainor
 25 Kessel Court
 Suite 201
 Madison, WI 53711

ANALYTICAL REPORT

WIS. LAB CERT. NO. 721026460

PAGE: 6 NLS PROJECT# 49903

NLS CUST# 8098

Project Description: K. Park
 Project Title: 05644-088
 MW-24 NET

Sample ID: MW-28 NET NLS#: 240748
 Ref. Line 4 of Sec Description: MW-28 NET
 Collected: 08/26/99 Received: 08/31/99 Reported: 09/27/99

Parameter

VOCs (water) by EPA 8021

Result see attached

Units

LOD

LOQ

Method

Analyzed Lab

SW846 8021 09/08/99 721026460

Sample ID: MW-1 NET NLS#: 210749

Ref. Line 1 of COC 39316 Description: MW-1 NET
 Collected: 08/27/99 Received: 08/31/99 Reported: 09/27/99

Parameter

Arsenic, dis. as As by ICP
 Chromium, dis. as Cr by ICP
 Copper, dis. as Cu by ICP
 Cyanide, tot. (distilled) as CN
 Iron, dis. as Fe by ICP
 Lead, dis. as Pb by ICP
 Nickel, dis. as Ni by ICP
 Zinc, dis. as Zn by ICP
 Metals digestion - total (water) ICP
 VOCs (water) by EPA 8021
 Base/Neutral/Acid Extraction
 Semi-volatile GC/MS by 8270C

Result

Units

LOD

LOQ

Method

Analyzed Lab

ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
ND	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
< 1.3 >	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
< 0.0040 >	mg/L	0.0032	0.011	EPA 335.4	09/07/99	721026460
1.3	ug/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
ND	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
< 1.3 >	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
27	ug/L	12	12	SW846 6010	09/03/99	721026460
yes				SW846 8021	09/08/99	721026460
see attached				SW846 3510	09/02/99	721026460
yes				SW846		
see attached				8270C	09/11/99	721026460

Additional Comments: Naphthalene had low recovery in the control, spike and duplicate. Naphthalene concentration should be considered an estimate because the value exceeds the high end of the calibration curve.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3000

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

Client: James E. Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

PAGE: 7
NLS PROJECT# 49903
NLS CUST# 8098

Project Description: K. Park
Project Title: 05644-088

Sample ID: MW-3 NET NLS#: 210750
Ref. Line 2 of COC 39316 Description: MW-3 NET
Collected: 08/27/99 Received: 08/31/99 Reported: 09/27/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	< 4.3	ug/L	4.2	15	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	< 0.61	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	16	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	ND	mg/L	0.0032	0.011	EPA 335.4	09/07/99	721026460
Iron, dis. as Fe by ICP	0.19	mg/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	< 1.6	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	8.6	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	23	ug/L	12	12	SW846 3010	09/03/99	721026460
Metals digestion - total (water) ICP	yes				SW846 8021	09/10/99	721026460
VOCs (water) by EPA 8021	see attached						
	Additional Comments: Unidentified hydrocarbons present.						
	Surrogate value is due to sample matrix. Check standard recovery was outside.						
	OC limits for Naphthalene at 131%.						
	see attached						
	Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.						

Base/Neutral/Acid Extraction
Semi-volatile GC/MS by 8270C

SW846 3510 09/02/99 721026460
SW846 8270C 09/17/99 721026460

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranford, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 8 NLS PROJECT# 49903

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

NLS CUST# 8098

Project Description: K. Park
Project Title: 05644-088

Sample ID: TW-11 NET NLS#: 210751
Hol. Line 3 of COC 39316 Description: TW-11 NET
Collected: 08/27/99 Received: 08/31/99 Reported: 09/27/99

Parameter

Arsenic, dis. as As by ICP
Chromium, dis. as Cr by ICP
Copper, dis. as Cu by ICP
Cyanide, tot. (distilled) as CN
Iron, dis. as Fe by ICP
Lead, dis. as Pb by ICP
Nickel, dis. as Ni by ICP
Zinc, dis. as Zn by ICP
Metals digestion - total (water) ICP
VOCs (water) by EPA 8021

Base/Neutral/Acid Extraction
Semi-volatile GC/MS by 8270C

Result	Units	LOD	Log	Method	Analyzed	Lab
ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
< 0.84 >	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
ND	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
ND	mg/L	0.0032	0.011	EPA 335.4	09/07/99	721026460
14	mg/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
< 2.7 >	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
< 0.87 >	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
150	ug/L	12	12	SW846 6010	09/03/99	721026460
yes				SW846 8021	09/09/99	721026460
see attached						
Additional Comments: Matrix spike and matrix spike duplicate						
percent difference exceeded control limits for Naphthalene at 128%.						
recovery was outside QC limits for Naphthalene at 128%.						
see attached						
yes				SW846 3510	09/02/99	721026460
see attached				SW846		
Additional Comments: 2,4-Dimethylphenol had low recovery in the				8270C		
control, spike and duplicate.					09/17/99	721026460

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Grandun, WI 54520
Tel: (715) 478-1777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 9 NLS PROJECT# 49903

Client: Dames & Moore

Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: K. Park
Project Title: 05644-088

Sample ID: TW-11 NET DUP NLS#: 210752
Ref. Line 4 of COC 39316 Description: TW-11 NET DUP
Collected: 08/27/99 Received: 08/31/99 Reported: 09/27/99

Parameter	Result	Units	LOD	LOG	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	ND	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	ND	mg/L	0.0032	0.011	EPA 335.4	09/07/99	721026460
Iron, dis. as Fe by ICP	14	mg/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	< 2.1	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	< 0.96	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	21	ug/L	12	12	SW846 6010	09/21/99	721026460
Metals digestion - total (water) ICP	Yes						
VOCs (water) by EPA 8021	see attached						

Additional Comments: Matrix spike and matrix spike duplicate see attached
percent difference exceeded control limits for Naphthalene at 128%.
recovery was outside QC limits for Naphthalene at 128%.
see attached
Additional Comments: 2,4-Dimethylphenol had low recovery in the control, spike and duplicate.

Base/Neutral/Acid Extraction
Semi-volatile GC/MS by 8270C

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Granden, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 10 NLS PROJECT# 49903

Client:

Dames & Moore
Attn: Dave Trainor
25 Kassel Court
Suite 201
Madison, WI 53711

NLS CUST# 8098

Project Description: K. Park
Project Title: 05644-088

Sample ID: TW-12 NET NLS#: 210753
Ref. Line 5 of COC 39316 Description: TW-12 NET
Collected: 08/28/99 Received: 08/31/99 Reported: 09/27/99

Parameter	Result	Units	LOD	LOG	Method	Analyzed	Lab
Arsenic, dis. as As by ICP	ND	ug/L	4.2	15	SW846 6010	09/21/99	721026460
Chromium, dis. as Cr by ICP	ND	ug/L	0.42	1.5	SW846 6010	09/21/99	721026460
Copper, dis. as Cu by ICP	ND	ug/L	0.47	1.7	SW846 6010	09/21/99	721026460
Cyanide, tot. (distilled) as CN	ND	mg/L	0.0032	0.011	EPA 335.4	09/07/99	721026460
Iron, dis. as Fe by ICP	13	mg/L	0.0010	0.0035	SW846 6010	09/21/99	721026460
Lead, dis. as Pb by ICP	2.1	ug/L	1.4	5.1	SW846 6010	09/21/99	721026460
Nickel, dis. as Ni by ICP	ND	ug/L	0.66	2.3	SW846 6010	09/21/99	721026460
Zinc, dis. as Zn by ICP	26	ug/L	12	12	SW846 6010	09/21/99	721026460
Metals digestion - total (water) ICP	yes				SW846 3010	09/03/99	721026460
VOCs (water) by EPA 8021	see attached				SW846 8021	09/08/99	721026460
Base/Neutral/Acid Extraction	yes				SW846 3510	09/02/99	721026460
Semivolatile GC/MS by 8270C	see attached				SW846 8270C	09/03/99	721026460

Additional Comments: Naphthalene result should be considered an estimate since this value exceeds the upper calibration standard.

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Grandin, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 11 NLS PROJECT# 49903

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

NLS CUST# 8098

Project Description: K. Park
Project Title: 05644-088

Sample ID: Trip Blank **NLS#:** 210754
Ref. Line 6 of COC 39316 **Description:** Trip Blank
Collected: 08/28/99 **Received:** 08/31/99 **Reported:** 09/27/99

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>LOD</u>	<u>LOQ</u>	<u>Method</u>	<u>Analyzed Lab</u>
VOCs (water) by EPA 8021	see attached				SW846 8021	09/08/99 721026460

Values in brackets represent results greater than the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation".
Results greater than the LOQ are considered to be in the region of "Certain Quantitation".

LOD = Limit of Detection
DMB = Dry Weight Basis

LOQ = Limit of Quantitation
NA = Not Applicable

ND = Not Detected
tDMB = (mg/kg DMB)/10000

Arthur R. Crisp

Reviewed by:

Authorized by:

R. T. Krueger
Laboratory Manager

ANALYTICAL RESULTS: WRTN by EPA 8021 MATCO (XXM)

Page: 1

Customer: James & Moore
Project Description: K Park Project Title: 05644-008
Northern Lake Service Project Number: 49903

Analyte	210745 MM-2 NET	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
Benzene	370	25	6.0	21
n-Butylbenzene	< 8.7 >	25	8.5	29
sec-Butylbenzene	ND	25	7.0	24
Isopropylbenzene	ND	25	6.3	22
p-Isopropyltoluene	360	25	14	48
Naphthalene	ND	25	6.2	22
n-Propylbenzene	ND	25	6.7	23
ortho-Xylene/Styrene	53	25	12	41
Toluene	22	25	6.0	21
1,2,4-Trimethylbenzene	< 21 >	25	6.7	23
1,3,5-Trimethylbenzene	ND	25	6.8	23
meta-para-Xylene	60	25	12	43
Surrogate Recovery on 2-Bromochlorobenzene-PID = 108 %				
Analyte	210746 MM-2 NET Dup	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
Benzene	380	25	6.0	21
n-Butylbenzene	< 16 >	25	8.5	29
sec-Butylbenzene	ND	25	7.0	24
Isopropylbenzene	ND	25	6.3	22
p-Isopropyltoluene	480	25	14	48
Naphthalene	ND	25	6.2	22
n-Propylbenzene	55	25	6.7	23
ortho-Xylene/Styrene	22	25	12	41
Toluene	< 22 >	25	6.0	21
1,2,4-Trimethylbenzene	ND	25	6.7	23
1,3,5-Trimethylbenzene	62	25	6.8	23
meta-para-Xylene		25	12	43
Surrogate Recovery on 2-Bromochlorobenzene-PID = 108 %				
Analyte	210747 MM-2 NET	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
Benzene	19000	1250	300	1000
n-Butylbenzene	2600	1250	420	1500
sec-Butylbenzene	< 370 >	1250	350	1200
Isopropylbenzene	ND	1250	320	1100
p-Isopropyltoluene	9000	1250	700	2400
Naphthalene	ND	1250	310	1100
n-Propylbenzene	ND	1250	340	1200
ortho-Xylene/Styrene	< 900 >	1250	590	2000
Toluene	9700	1250	300	1000
1,2,4-Trimethylbenzene	ND	1250	330	1200
1,3,5-Trimethylbenzene	ND	1250	340	1200
meta-para-Xylene	< 1700 >	1250	620	2200
Surrogate Recovery on 2-Bromochlorobenzene-PID = 103 %				

MM-2B NET
NSA4

Customer: Dames & Moore
 Project Description: K. Park Project Title: 05644-088
 Northern Lake Service Project Number: 49903

210748 MW-24-NET
 MW-24-NET

Analyte	210748 MW-24-NET	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Benzene	17	2.5	0.60	2.1
n-Butylbenzene	3.5	2.5	0.85	2.9
sec-Butylbenzene	ND	2.5	0.70	2.4
Isopropylbenzene	ND	2.5	0.63	2.2
p-Isopropyltoluene	ND	2.5	1.4	4.8
Naphthalene	8.9	2.5	0.62	2.2
n-Propylbenzene	ND	2.5	0.67	2.3
ortho-Xylene/Styrene	< 1.7 >	2.5	1.2	4.1
Toluene	13	2.5	0.60	2.1
1,2,4-Trimethylbenzene	ND	2.5	0.67	2.3
1,3,5-Trimethylbenzene	ND	2.5	0.68	2.3
meta,para-Xylene	< 2.2 >	2.5	1.2	4.3
Surrogate Recovery on 2-Bromochlorobenzene: PID = 103 %				

Analyte	210749 MW-1-NET	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Benzene	1700	125	30	100
n-Butylbenzene	ND	125	42	150
sec-Butylbenzene	ND	125	35	120
Isopropylbenzene	ND	125	32	110
p-Isopropyltoluene	ND	125	70	240
Naphthalene	1800	125	31	110
n-Propylbenzene	ND	125	34	120
ortho-Xylene/Styrene	< 130 >	125	59	200
Toluene	< 65 >	125	30	100
1,2,4-Trimethylbenzene	< 97 >	125	33	120
1,3,5-Trimethylbenzene	ND	125	34	120
meta,para-Xylene	230	125	62	220
Surrogate Recovery on 2-Bromochlorobenzene: PID = 110 %				

Analyte	210750 MW-3-NET	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Benzene	ND	2.5	0.60	2.1
n-Butylbenzene	3.3	2.5	0.85	2.9
sec-Butylbenzene	< 1.4 >	2.5	0.70	2.4
Isopropylbenzene	ND	2.5	0.63	2.2
p-Isopropyltoluene	ND	2.5	1.4	4.8
Naphthalene	7.4	2.5	0.62	2.2
n-Propylbenzene	ND	2.5	0.67	2.3
ortho-Xylene/Styrene	ND	2.5	1.2	4.1
Toluene	ND	2.5	0.60	2.1
1,2,4-Trimethylbenzene	ND	2.5	0.67	2.3
1,3,5-Trimethylbenzene	ND	2.5	0.68	2.3
meta,para-Xylene	ND	2.5	1.2	4.3
Surrogate Recovery on 2-Bromochlorobenzene: PID = 123 %				

ANALYTICAL RESULTS: VOC's by EPA 8271 Method (XRB)

Page: 1

Contract: Brown & Moore
Project Description: K. Park Project Title: 07644 008
Northern Lake Service Project Number: 49003

Analyte	210751 TW-11 NET	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Benzene	ND	250	60	210
n-Butylbenzene	ND	250	85	290
sec-Butylbenzene	ND	250	70	240
Isopropyltoluene	ND	250	63	220
p-Isopropyltoluene	ND	250	140	480
Naphthalene	4600	250	62	220
n-Propylbenzene	ND	250	67	230
ortho-Xylene/Styrene	ND	250	120	410
Toluene	ND	250	60	210
1,2,4-Trimethylbenzene	< 190 >	250	67	230
1,3,5-Trimethylbenzene	ND	250	68	230
meta,para-Xylene	< 160 >	250	120	430
Surrogate Recovery on 2-Bromochlorobenzene-PID = 117 %				
Analyte	210752 TW-11 NET DUP	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Benzene	ND	250	60	210
n-Butylbenzene	ND	250	85	290
sec-Butylbenzene	ND	250	70	240
Isopropylbenzene	ND	250	63	220
p-Isopropyltoluene	3900	250	140	480
Naphthalene	ND	250	67	230
n-Propylbenzene	ND	250	120	410
ortho-Xylene/Styrene	ND	250	60	210
Toluene	< 200 >	250	67	230
1,2,4-Trimethylbenzene	ND	250	68	230
1,3,5-Trimethylbenzene	< 140 >	250	120	430
meta,para-Xylene				
Surrogate Recovery on 2-Bromochlorobenzene-PID = 114 %				
Analyte	210753 TW-12 NET	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Benzene	160	12.5	3.0	10
n-Butylbenzene	ND	12.5	4.2	15
sec-Butylbenzene	ND	12.5	3.5	12
Isopropylbenzene	ND	12.5	3.2	11
p-Isopropyltoluene	ND	12.5	7.0	24
Naphthalene	210	12.5	3.1	11
n-Propylbenzene	ND	12.5	3.4	12
ortho-Xylene/Styrene	< 9.7 >	12.5	5.9	20
Toluene	ND	12.5	3.0	10
1,2,4-Trimethylbenzene	16	12.5	3.3	12
1,3,5-Trimethylbenzene	ND	12.5	3.4	12
meta,para-Xylene	< 7.9 >	12.5	6.2	22
Surrogate Recovery on 2-Bromochlorobenzene-PID = 104 %				

Customer: Dames & Moore
Project Description: K. Park Project Title: 05644-088
Northern Lake Service Project Number: 49903

Analyte	210754 Trip Blank	DILUTION FACTOR	LOD ug/L	LOQ ug/L
Name	ND	1	0.24	0.64
Benzene	ND	1	0.34	1.2
n-Butylbenzene	ND	1	0.28	0.96
sec-Butylbenzene	ND	1	0.25	0.87
Isopropylbenzene	ND	1	0.56	1.9
p-Isopropyltoluene	ND	1	0.25	0.86
Naphthalene	ND	1	0.27	0.93
n-Propylbenzene	ND	1	0.47	1.6
ortho-Xylene/Styrene	ND	1	0.24	0.82
Toluene	ND	1	0.27	0.92
1,2,4-Trimethylbenzene	ND	1	0.27	0.93
1,3,5-Trimethylbenzene	ND	1	0.27	0.93
meta,para-Xylene	ND	1	0.50	1.7

Surrogate Recovery on 2-Bromochlorobenzene-PID = 101 %

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C
Page: 1

Customer: Dames & Moore
Project Description: K. Park Project Title: 05644-088
Northern Lake Service Project Number: 49903

Analyte	210536 MW-2 NET	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
Acenaphthene	66	10.2	14	46
Acenaphthylene	63	10.2	14	46
Anthracene	ND	10.2	12	38
Benzo[a]anthracene	73	10.2	7.8	21
Benzo[a]pyrene	88	10.2	12	41
Benzo[b]fluoranthene	92	10.2	6.5	21
Benzo[g,h,i]perylene	75	10.2	12	40
Benzo[k]fluoranthene	78	10.2	13	45
Butylbenzylphthalate	ND	10.2	11	36
Chrysene	78	10.2	6.9	22
Di-n-butylphthalate	ND	10.2	17	56
Dibenz[a,h]anthracene	ND	10.2	7.0	22
2,4-Dimethylphenol	51	10.2	31	100
Fluoranthene	ND	10.2	6.8	22
Fluorene	ND	10.2	11	37
Indeno[1,2,3-cd]pyrene	ND	10.2	7.0	22
2-Methylnaphthalene	69	10.2	15	49
3 & 4-Methylphenol	ND	10.2	13	45
Naphthalene	ND	10.2	15	51
Phenanthrene	310	10.2	16	53
Pyrene	55	10.2	6.6	21
	ND	10.2	7.8	26
	56	10.2	13	44

Customer: Dames & Moore
Project Description: K. Park Project Title: 05644-088
Northern Lake Service Project Number: 49903

Analyte	210537 MW-2 NET (ug)	DILUTION FACTOR	LOD ug/L	100 ug/L
Name	ug/L			
Acenaphthene	64	10	13	45
Acenaphthylene	61	10	14	47
Anthracene	ND	10	12	37
Benzo[a]anthracene	71	10	7.6	21
Benzo[a]pyrene	84	10	12	40
Benzo[b]fluoranthene	89	10	6.4	21
Benzo[g,h,i]perylene	71	10	12	39
Benzo[k]fluoranthene	75	10	13	44
Butylbenzylphthalate	ND	10	11	35
Chrysene	ND	10	6.8	22
Di-n-butylphthalate	ND	10	16	55
Dibenz[a,h]anthracene	ND	10	6.9	22
2,4-Dimethylphenol	ND	10	31	100
Fluoranthene	ND	10	6.7	22
Fluorene	ND	10	11	36
Indeno[1,2,3-cd]pyrene	67	10	6.9	22
2-Methylnaphthalene	ND	10	14	48
2-Methylphenol	ND	10	13	44
3,4,4-Methylphenol	ND	10	15	50
Naphthalene	310	10	15	52
Phenanthrene	ND	10	6.5	21
Phenol	ND	10	7.6	25
Pyrene	ND	10	13	43

ANALYTICAL RESULTS from Volatile Organic Compounds by EPA METHOD

Page 1

ANALYST: James A. Moore
Project: Distribution K. Park Project Title: 05644 008
Northern Lake Service Project Number: 49903

MW-28
NET

Analyte	210538 MW-28 NET	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
Acenaphthene	ND	103	140	460
Acenaphthylene	ND	103	120	390
Anthracene	ND	103	78	210
Benzo[a]anthracene	ND	103	120	420
Benzo[a]pyrene	ND	103	66	210
Benzo[b]fluoranthene	ND	103	120	400
Benzo[g,h,i]perylene	ND	103	140	450
Benzo[k]fluoranthene	ND	103	110	360
Butylbenzylphthalate	ND	103	70	220
Chrysene	ND	103	170	560
Di-n-butylphthalate	ND	103	71	230
Dibenz[a,h]anthracene	< 760 >	103	320	1100
2,4-Dimethylphenol	ND	103	69	220
Fluoranthene	ND	103	110	370
Fluorene	ND	103	71	230
Indeno[1,2,3-cd]pyrene	< 100 >	103	150	500
2-Methylthiophene	< 400 >	103	140	450
3-Methylthiophene	740	103	150	520
3,4,4-Methylphenol	3500	103	160	530
Naphthalene	ND	103	67	210
Phenanthrene	ND	103	78	260
Phenol	ND	103	78	260
Pyrene	ND	103	130	440

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C

Page: 4

Customer: James & Moore Park Project Title: 05644-088
Project Description: K. Park Project Number: 49903
Northern Lake Service Project

Analyte

Analyte	210539 ug/l	FW-20 ug/l	DILUTION FACTOR	ug/l	100 ug/l
Numer	ND	1.4	1.03	1.4	4.6
Acenaphthene	ND	1.4	1.03	1.4	4.6
Acenaphthylene	ND	1.2	1.03	1.2	3.9
Anthracene	ND	0.78	1.03	0.78	2.1
Benzo[a]anthracene	ND	1.2	1.03	1.2	4.2
Benzo[a]pyrene	ND	0.66	1.03	0.66	2.1
Benzo[b]fluoranthene	ND	1.2	1.03	1.2	4.0
Benzo[g,h,i]perylene	ND	1.4	1.03	1.4	4.5
Benzo[k]fluoranthene	ND	1.1	1.03	1.1	3.6
Butylbenzylphthalate	ND	0.70	1.03	0.70	2.2
Chrysene	ND	1.7	1.03	1.7	5.6
Di-n-butylphthalate	ND	0.71	1.03	0.71	2.3
Dibenz[a,h]anthracene	ND	3.2	1.03	3.2	11
2,4-Dimethylphenol	ND	0.69	1.03	0.69	2.2
Fluoranthene	ND	1.1	1.03	1.1	3.7
Fluorene	ND	0.71	1.03	0.71	2.3
Indeno[1,2,3-cd]pyrene	ND	1.5	1.03	1.5	5.0
2-Methylnaphthalene	ND	1.3	1.03	1.3	4.5
2-Methylphenol	ND	1.5	1.03	1.5	5.2
3 & 4-Methylphenol	ND	1.6	1.03	1.6	5.3
Naphthalene	ND	0.67	1.03	0.67	2.1
Phenanthrene	ND	0.78	1.03	0.78	2.6
Phenol	ND	1.3	1.03	1.3	4.4

Pyrene
Surrogate Recovery on 2-Fluorophenol - 45.3 %
Surrogate Recovery on Phenol-d5 - 36.2 %
Surrogate Recovery on Nitrobenzene-d5 - 61.5 %
Surrogate Recovery on 2-Fluorobiphenyl - 61.6 %
Surrogate Recovery on 2,4,6-Tribromophenol - 59.5 %
Surrogate Recovery on Terphenyl-d14 - 70.0 %

HW-24 NE MS7

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C
 Page: 5

Customer: James A. Moore
 Project Description: K. Park Project Title: 05644-088
 Northern Lake Service Project Number: 49903

Analyte	210749 MM 1 NET	DILUTION	LOD	100
Name	ug/L	FACTOR	ug/L	ug/L
Acenaphthene	< 500 >	204	280	910
Acenaphthylene	ND	204	240	920
Anthracene	ND	204	160	760
Benzo[a]anthracene	ND	204	250	420
Benzo[a]pyrene	ND	204	130	820
Benzo[b]fluoranthene	ND	204	240	420
Benzo[g,h,i]perylene	ND	204	270	800
Butylbenzylphtalate	ND	204	220	900
Chrysene	ND	204	140	720
Di-n-butylphtalate	ND	204	140	440
Dibenz[a,h]anthracene	ND	204	140	450
2,4-Dimethylphenol	ND	204	630	2100
Fluoranthene	ND	204	140	440
Fluorene	ND	204	220	740
Indeno[1,2,3-cd]pyrene	< 530 >	204	140	450
2-Methylnaphthalene	ND	204	290	980
2-Methylphenol	ND	204	270	890
3 & 4-Methylphenol	1200	204	310	1000
Naphthalene	900	204	310	1100
Phenanthrene	ND	204	130	420
Pyrene	ND	204	160	520
pyrene	ND	204	260	880

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C

Page: 6

Customer: Dumas & Moore
 Project Description: K. Park Project Title: 05644-088
 Northern Lake Service Project Number: 49903

Analyte	210750 MW-3 NET	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
Acenaphthene	140	20	27	89
Acenaphthylene	130	20	24	90
Anthracene	170	20	15	75
Benzo[a]anthracene	ND	20	24	41
Benzo[a]pyrene	200	20	23	81
Benzo[b]fluoranthene	190	20	23	41
Benzo[g,h,i]perylene	150	20	26	78
Benzo[k]fluoranthene	170	20	21	88
Butylbenzylphtthalate	ND	20	14	70
Chrysene	240	20	11	43
Di-n-butylphthalate	ND	20	14	110
Dibenz[a,h]anthracene	ND	20	62	44
2,4-Dimethylphenol	ND	20	13	210
Fluoranthene	240	20	22	43
Fluorene	93	20	14	73
Indeno[1,2,3-cd]pyrene	ND	20	29	44
2-Methylnaphthalene	ND	20	26	96
3 & 4-Methylphenol	ND	20	30	87
Naphthalene	140	20	31	100
Phenanthrene	150	20	13	41
Phenol	ND	20	15	51
Pyrene	470	20	26	86

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C

Client: Lawrence A. Moore
Project Description: K. Park Project Title: 05044 008
Northern Lake Service Project Number: 49903

Page: 7

Analyte	210751 TW-11 NET	LOD	LOQ
Name	ug/L	ug/L	ug/L
Acenaphthene	540	27	89
Acenaphthylene	140	20	90
Anthracene	240	20	75
Benzo [a] anthracene	ND	20	41
Benzo [a] pyrene	180	20	81
Benzo [b] fluoranthene	180	20	41
Benzo [g, h, i] perylene	ND	20	78
Benzo [k] fluoranthene	160	20	88
Butylbenzylphthalate	ND	20	70
Chrysene	180	20	43
Di-n-butylphthalate	ND	20	110
Dibenz[a, h] anthracene	ND	20	44
2,4-Dimethylphenol	ND	20	210
Fluoranthene	200	20	43
Fluorene	190	20	73
Indeno[1,2,3-cd]pyrene	ND	20	44
2-Methylnaphthalene	1500	100	480
2-Methylphenol	ND	20	87
3,4-Methylphenol	ND	20	100
Naphthalene	3000	100	520
Phenanthrene	480	20	41
Phenol	ND	20	51
Pyrene	250	20	86

ANALYTICAL RESULTS: Semi-Volatile Organic Compounds by EPA 8270C

Page: 8

Customer: Dames & Moore
 Project Description: K. Park Project Title: 05644-088
 Northern Lake Service Project Number: 49903

Analyte	21075.2 TW 11 NET DMR	DILUTION	LOD	LOQ
Name	ug/L	FACTOR	ug/L	ug/L
Acenaphthene	2200	20	270	890
Acenaphthylene	220	20	27	90
Anthracene	710	20	24	75
Benzo[a]anthracene	ND	20	15	41
Benzo[a]pyrene	240	20	24	81
Benzo[b]fluoranthene	210	20	13	41
Benzo[g,h,i]perylene	150	20	23	78
Benzo[k]fluoranthene	200	20	26	88
Benzylbenzylphthalate	ND	20	21	70
Chrysene	300	20	14	43
Di-n-butylphthalate	ND	20	33	110
Dibenz[a,h]anthracene	ND	20	14	44
2,4-Dimethylphenol	ND	20	62	210
Fluoranthene	600	20	13	43
Fluorene	770	20	22	73
Indeno[1,2,3-cd]pyrene	ND	20	14	44
2-Methylnaphthalene	3900	200	290	960
2-Methylphenol	ND	20	26	87
3,4-Methylphenol	ND	20	30	100
Naphthalene	2700	200	310	1000
Phenanthrene	2200	200	130	410
Phenol	ND	20	15	51
Pyrene	780	20	26	86

ANALYTICAL RESULTS: Semi-Volatile Organic Compounds by EPA 8270C

Page: 9

Customer: Dames & Moore
 Project Description: K. Park Project Title: 05644-088
 Northern Lake Service Project Number: 49903

Analyte	210753	TM-12	NET	DILUTION	LOD	LOQ
Name	ug/L			FACTOR	ug/L	ug/L
Acenaphthene	15			1.03	1.4	4.6
Acenaphthylene	ND			1.03	1.4	4.6
Anthracene	ND			1.03	1.2	3.9
Benzo[a]anthracene	ND			1.03	0.78	2.1
Benzo[a]pyrene	ND			1.03	1.2	4.2
Benzo[b]fluoranthene	ND			1.03	0.66	2.1
Benzo[g,h,i]perylene	ND			1.03	1.2	4.0
Benzo[k]fluoranthene	ND			1.03	1.1	4.5
Butylbenzylphtalate	ND			1.03	0.70	3.6
Chrysene	ND			1.03	1.7	2.2
Di-n-butylphtalate	ND			1.03	0.71	2.3
Dibenzof[a,h]anthracene	ND			1.03	3.2	11
2,4-Dimethylphenol	ND			1.03	0.69	2.2
Fluoranthene	ND			1.03	1.1	3.7
Fluorene	ND			1.03	0.71	2.3
Indeno[1,2,3-cd]pyrene	ND			1.03	1.5	5.0
2-Methylnaphthalene	ND			1.03	1.3	4.5
2-Methylphenol	ND			1.03	1.5	5.2
3 & 4-Methylphenol	120			1.03	1.6	5.3
Naphthalene	ND			1.03	0.67	2.1
Phenanthrene	ND			1.03	0.78	2.6
Phenol	3.6			1.03	1.3	4.4
Pyrene	ND			1.03	1.3	4.4
Surrogate Recovery on 2-Fluorophenol	61.2	%				
Surrogate Recovery on Phenol-d5	44.8	%				
Surrogate Recovery on Nitrobenzene-d5	72.4	%				
Surrogate Recovery on 2-Fluorobiphenyl	72.5	%				
Surrogate Recovery on 2,4,6-Trichlorophenol	73.4	%				
Surrogate Recovery on Tetraphenyl-d14	72.1	%				





NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298

Tel: (715) 478-2777 • Fax: (715) 478-3060

NO. 39314

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 721026400

RETURN THIS FORM WITH SAMPLES.

CLIENT: <u>James + Marie</u>		DNR LICENSE		FID	
ADDRESS: <u>Kessel Ct S 7201</u>		PROJECT TITLE: <u>R. R. K</u>		PROJECT NO. <u>05644-088</u>	
CITY: <u>Wausau</u> STATE: <u>WI</u> ZIP: <u>53711</u>		CONTACT: <u>Don Trainer</u>		P.O. NO.	
				PHONE: <u>605.273.2886</u>	

ITEM NO.	NLS LAB. NO.	SAMPLE ID	DNR ID	COLLECTION		SAMPLE TYPE	GRAB/COMP.	CONTAINER/PRESERVATIVE			COLLECTION REMARKS
				DATE	TIME			G	P	A	
1.	210536	MW-2 Nst		8/26	1430	6W	6	1	1	1	
2.	210537	MW 2A Nst		8/26	1500						
3.	210539	MW-2B Nst		8/26	1515						
4.											
5.											
6.											
7.											
8.											
9.											
10.											
11.											
12.											

SAMPLE TYPE:

SW=surface water
WW=wastewater
GW=groundwater

DW=drinking water
TIS=tissue
AIR=air

PROD=product
SOIL=soil
SED=sediment

describe others

CONTAINER

P = plastic
G = glass
V = glass vial
B = plastic bag

describe others

PRESERVATIVES & PREPARATION

NP = nothing added
S = sulfuric acid
N = nitric acid
Z = zinc acetate

OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid

COLLECTED BY (signature)

RELINQUISHED BY (signature)

RELINQUISHED BY (signature)

DISPATCHED BY (signature)

RECEIVED BY (signature)

RECEIVED BY (signature)

METHOD OF TRANSPORT

CUSTODY SEAL NO. (IF ANY) DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

RECEIVED AT NLS BY (signature)

DATE/TIME

CONDITION

TEMP

SEAL INTACT

☐ YES ☐ NO

SEAL #

REMARKS & OTHER INFORMATION

1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

DUPLICATE COPY

APPENDIX C



APPENDIX C

**LABORATORY REPORTS FOR THE
B-35, B-36/MW-16, AND B-37 BORINGS**

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Grandin, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 1 NLS PROJECT# 49883

Client: Dames & Moore

Attn: Dave Trainor

25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP-Ashland
Project Title: 05644-088

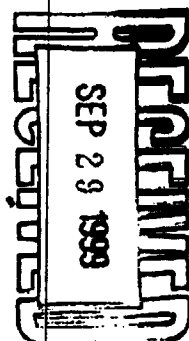
Sample ID: Soil, B-35 8-10' NLS#: 210427

Ref. Line 1 of COC 39296 Description: Soil, B-35 8-10'
Collected: 08/24/99 Received: 08/26/99 Reported: 09/20/99

Parameter	Result	Units	LOD	LOG	Method	Analyzed	Lab
Arsenic, tot. as As by furnace AAS	< 2.1 >	mg/Kg DMB	1.6	5.6	SW846 7060	09/10/99	721026460
Chromium, tot. as Cr	23	mg/Kg DMB	0.58	2.0	SW846 6010	09/14/99	721026460
Copper, tot. as Cu	11	mg/Kg DMB	0.31	1.1	SW846 6010	09/14/99	721026460
Cyanide, tot. (distilled) on solids	ND	mg/Kg DMB	0.045	0.15	SW846 9010	09/08/99	721026460
Iron, tot. as Fe	22000	mg/Kg DMB	35	120	SW846 6010	09/17/99	721026460
Lead, tot. as Pb	< 7.2 >	mg/Kg DMB	3.9	14	SW846 6010	09/02/99	721026460
Nickel, tot. as Ni	19	mg/Kg DMB	0.77	2.7	SW846 6010	09/12/99	721026460
Solids, total on solids	61.7	mg/Kg DMB	0.10	0.58	ASTM D2216	08/30/99	721026460
Zinc, tot. as Zn	43	mg/Kg DMB	0.58		SW846 6010	09/10/99	721026460
Metals digestion - total (soil/sludge) ICP	Yes				SW846 3050	08/30/99	721026460
Metals digestion - total (soil/sludge) furnace	Yes				SW846 3050	09/01/99	721026460
VOC's (soils) by EPA 8021	see attached				SW846 8021	09/03/99	721026460
Semivolatile GC/MS by 8270C (soil)	see attached				SW846 8270C	09/03/99	721026460

Additional Comments: 2,4-dimethylphenol recovery for the control, spike and duplicate was low.

SW846 08/27/99 721026460
3550B



NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

PAGE: 2 NLS PROJECT# 49883
NLS CUST# 8098

Project Description: NSP-Ashland
Project Title: 05644-088

Sample ID: Soil, B-36 3-5' NLS#: 210428
Ref. Line 2 of COC 39296 Description: Soil, B-36 3-5'
Collected: 08/23/99 Received: 08/26/99 Reported: 09/20/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, tot. as As by furnace AAS	ND	mg/Kg DMB	1.2	4.2	SM846 7060	09/10/99	721026460
Chromium, tot. as Cr	42	mg/Kg DMB	0.65	2.3	SM846 6010	09/15/99	721026460
Copper, tot. as Cu	19	mg/Kg DMB	0.35	1.3	SM846 6010	09/10/99	721026460
Cyanide, tot. (distilled) on solids	ND	mg/Kg DMB	0.035	0.12	SM846 9010	09/08/99	721026460
Iron, tot. as Fe	31000	mg/Kg DMB	40	140	SM846 6010	09/17/99	721026460
Lead, tot. as Pb	< 10	mg/Kg DMB	4.4	16	SM846 6010	09/02/99	721026460
Nickel, tot. as Ni	24	mg/Kg DMB	0.86	3.1	SM846 6010	09/12/99	721026460
Solids, total on solids	77.9	mg/Kg DMB	0.10	0.65	ASTM D2216	08/30/99	721026460
Zinc, tot. as Zn	49	mg/Kg DMB	0.65		SM846 6010	09/10/99	721026460
Metals digestion - total (soil/sludge) ICP	yes				SM846 3050	08/30/99	721026460
Metals digestion - total (soil/sludge) furnace	yes				SM846 3050	09/01/99	721026460
VOCs (soils) by EPA 8021	see attached				SM846 8021	09/03/99	721026460
Semivolatile GC/MS by 8270C (soil)	see attached				SM846 8270C	09/03/99	721026460
Additional Comments: 2,4-dimethylphenol recovery for the control, spike and duplicate was low.							
Ultra-sonic Extraction by 3550B	yes				SM846 3550B	08/27/99	721026460

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

WIS. LAB CERT. NO. 721026460

ANALYTICAL REPORT

PAGE: 3 NLS PROJECT# 49883

Client:

Dames & Moore
Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP-Ashland
Project Title: 05644-088

Sample ID: Soil, B-37 NLS#: 210429 10-12'
Ref. Line 3 of COC 39296 Description: Soil, B-37
Collected: 08/23/99 Received: 08/26/99 Reported: 09/20/99

Parameter	Result	Units	LOD	LOQ	Method	Analyzed	Lab
Arsenic, tot. as As by furnace AAS	16	mg/Kg DMB	0.90	3.1	SW846 7060	09/10/99	721026460
Chromium, tot. as Cr	13	mg/Kg DMB	0.37	1.3	SW846 6010	09/15/99	721026460
Copper, tot. as Cu	10	mg/Kg DMB	0.20	0.71	SW846 6010	09/10/99	721026460
Cyanide, tot. (distilled) on solids	ND	mg/Kg DMB	0.028	0.096	SW846 9010	09/08/99	721026460
Iron, tot. as Fe	13000	mg/Kg DMB	23	80	SW846 6010	09/17/99	721026460
Lead, tot. as Pb	< 6.4 >	mg/Kg DMB	2.5	8.9	SW846 6010	09/07/99	721026460
Nickel, tot. as Ni	10	mg/Kg DMB	0.49	1.8	SW846 6010	09/12/99	721026460
Solids, total on solids	90.7	mg/Kg DMB	0.10	0.37	ASTM D2216	08/30/99	721026460
Zinc, tot. as Zn	25	mg/Kg DMB	0.37		SW846 6010	09/10/99	721026460
Metals digestion - total (soil/sludge) ICP	Yes				SW846 3050	08/30/99	721026460
Metals digestion - total (soil/sludge) Furnace	Yes				SW846 3050	09/01/99	721026460
VOCs (soils) by EPA 8021	see attached				SW846 8021	09/03/99	721026460
Semivolatile GC/MS by 8270C (soil)	see attached				SW846 8270C	09/03/99	721026460

Additional Comments: 2,4-dimethylphenol recovery for the control, spike and duplicate was low.

Ultrasonic Extraction by 3550B

SW846 08/27/99 721026460
3550B

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Cranston, WI 54520
Tel: (715) 478-2777 Fax: (715) 478-3060

ANALYTICAL REPORT

WIS. LAB CERT. NO. 721026460

Client: Dames & Moore

Attn: Dave Trainor
25 Kessel Court
Suite 201
Madison, WI 53711

Project Description: NSP-Ashland
Project Title: 05644-088

PAGE: 4 NLS PROJECT# 49883

NLS CUST# 8098

Sample ID: MeOH Blank NLS#: 210430

Rel. line 4 of COC 39296 Description: MeOH Blank
Collected: 08/23/99 Received: 08/26/99 Reported: 09/20/99

Parameter

VOCs (soils) by EPA 8021

Result see attached

Units

LOD

LOQ

Method

Analyzed Lab

SW846 8021 09/03/99 721026460

Values in brackets represent results greater than the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation".
Results greater than the LOQ are considered to be in the region of "Certain Quantitation".

LOD = Limit of Detection
DMB = Dry Weight Basis

LOQ = Limit of Quantitation
NA = Not Applicable

ND = Not Detected
%DMB = (mg/kg DMB)/10000

Reviewed By: *Arthur R. C.*

Authorized by:
R. T. Krueger
Laboratory Manager

ANALYTICAL RESULTS: WORTH BY EPA 8240 Method (Section 2000)

Page: 1

Contract: Johnson & Moore
Project: Brent Point Bld. Addition Project Title: 0544 000
Northern Lake Service Project Number: 49883

Analyte	210427 Soil, B-35 8-10'	DILUTION	LOD	LOQ
Name	ug/kg	FACTOR	ug/kg	ug/kg
benzene	ND	1	11	35
n-Butylbenzene	ND	1	11	36
sec-Butylbenzene	ND	1	12	41
Isopropylbenzene	ND	1	11	39
p-Isopropyltoluene	ND	1	13	44
Naphthalene	ND	1	11	38
n-Propylbenzene	ND	1	25	79
ortho-Xylene	ND	1	17	57
Toluene	ND	1	14	46
1,2,4-Trimethylbenzene	ND	1	10	33
1,3,5-Trimethylbenzene	ND	1	25	86
meta,para-Xylene				
Surogate Recovery on Dibromofluoromethane = 93.0 %				
Surogate Recovery on Toluene-d8 = 103 %				
Surogate Recovery on 1-Bromo-4-Fluorobenzene = 106 %				

Project Title: 05644-088
r: 49883

Analyte	210429 Soil, B-37	LOQ
Name	ug/kg	ug/kg
Benzene	ND	35
n-Butylbenzene	ND	36
sec-Butylbenzene	ND	36
Isopropylbenzene	ND	41
p-Isopropyltoluene	ND	39
Naphthalene	ND	44
n-Propylbenzene	ND	38
ortho-Xylene	ND	25
Toluene	ND	17
1,2,4-Trimethylbenzene	ND	14
1,3,5-Trimethylbenzene	ND	10
meta-para-Xylene	ND	33
Surrogate Recovery on Dibromofluoromethane = 89.0 %		
Surrogate Recovery on Toluene-d8 = 106 %		
Surrogate Recovery on 1-Bromo-4-Fluorobenzene = 116 %		

Customer: James & Moore
 Project Description: NSP-Ashland Project Title: 05644-088
 Northern Lake Service Project Number: 49883

Analyte	210430 MeOH Blank	DILUTION	LOD	LOQ
Name	ug/kg	FACTOR	ug/kg	ug/kg
Benzene	ND	1	11	35
n-Butylbenzene	ND	1	11	16
sec-Butylbenzene	ND	1	11	36
Isopropylbenzene	ND	1	12	41
p-Isopropyltoluene	ND	1	11	39
Naphthalene	ND	1	13	44
n-Propylbenzene	ND	1	11	38
ortho-Xylene	ND	1	25	79
Toluene	ND	1	17	57
1,2,4-Trimethylbenzene	ND	1	14	46
1,3,5-Trimethylbenzene	ND	1	10	33
mela,para Xylene	ND	1	25	86
Surrogate Recovery on Dibromofluoromethane	- 97.0 %			
Surrogate Recovery on Toluene-d8	- 101 %			
Surrogate Recovery on 1-Bromo-4-Fluorobenzene	- 98.0 %			

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8210C
Page: 1

Customer: James & Moore
Project Description: NSF Ashland Project Title: 05644-088
Northern Lake Service Project Number: 49883

Analyte	210427 Soil, B-35 8-10'	DILUTION	LOD	LOQ
Name	ug/Kg	FACTOR	ug/Kg	ug/Kg
Acenaphthene	ND	1	92	310
Acenaphthylene	ND	1	96	320
Anthracene	ND	1	110	380
Benzo[a]anthracene	ND	1	100	330
Benzo[a]pyrene	ND	1	120	410
Benzo[b]fluoranthene	ND	1	110	380
Benzo[e]fluoranthene	ND	1	92	310
Butylbenzylphtalate	ND	1	120	410
Chrysene	ND	1	100	340
Dibenz[a,h]anthracene	ND	1	95	320
2,4-Dimethylphenol	ND	1	69	230
Fluoranthene	ND	1	99	330
Fluorene	ND	1	140	460
Indeno[1,2,3-cd]pyrene	ND	1	95	320
2-Methylnaphthalene	ND	1	100	340
2-Methylphenol	ND	1	85	280
3 & 4-Methylphenol	ND	1	100	340
Naphthalene	ND	1	120	410
Phenanthrene	ND	1	110	360
Phenol	ND	1	85	280
Pyrene	ND	1	100	340
Surrogate Recovery on 2-Fluorophenol - 83.6 %				
Surrogate Recovery on Phenol-d5 - 82.0 %				
Surrogate Recovery on Nitrobenzene-d5 - 75.3 %				
Surrogate Recovery on 2-Fluorobiphenyl - 76.7 %				
Surrogate Recovery on 2,4,6-Tribromophenol - 66.6 %				
Surrogate Recovery on Terphenyl d14 - 91.3 %				

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C
Page: 2

Customer: James & Moore
Project Description: MSP-Ashtland Project Title: 05644-088
Northern Lake Service Project Number: 49883

Analyte	210428 Soil, B-36 3-5"	DILUTION FACTOR	LOD ug/Kg	LOQ ug/Kg
Num:	ND	.96	96	320
Acenaphthene	ND	.96	88	290
Acenaphthylene	ND	.96	92	310
Anthracene	ND	.96	110	360
Benzo[a]anthracene	ND	.96	96	320
Benzo[a]pyrene	ND	.96	120	390
Benzo[b]fluoranthene	ND	.96	110	360
Benzo[g,h,i]perylene	ND	.96	89	300
Benzo[k]fluoranthene	ND	.96	120	390
Butylbenzylphthalate	ND	.96	98	330
Chrysene	ND	.96	120	390
Di-n-butylphthalate	ND	.96	91	300
Dibenz[a,h]anthracene	ND	.96	66	220
2,4-Dimethylphenol	ND	.96	95	320
Fluoranthene	ND	.96	130	440
Fluorene	ND	.96	92	310
Indeno[1,2,3-cd]pyrene	ND	.96	99	330
2-Methylnaphthalene	ND	.96	81	270
2-Methylphenol	ND	.96	98	330
3 & 4-Methylphenol	ND	.96	120	390
Naphthalene	ND	.96	100	340
Phenanthrene	ND	.96	82	270
Phenol	ND	.96	99	330
Pyrene	ND	.96	99	330
Surrogate Recovery on 2-Fluorophenol	71.0 %			
Surrogate Recovery on Phenol-d5	73.0 %			
Surrogate Recovery on Nitrobenzene-d5	69.5 %			
Surrogate Recovery on 2-Fluorobiphenyl	67.7 %			
Surrogate Recovery on 2,4,6-Trichlorophenol	62.0 %			
Surrogate Recovery on Terphenyl-d14	83.4 %			

ANALYTICAL RESULTS: Semi Volatile Organic Compounds by EPA 8270C
 Page: 3

Customer: James & Moore
 Project Description: NSP Ashland Project Title: 05644-088
 Northern Lake Service Project Number: 49883

Analyte Name	219429 Soil, B-37 ug/Kg	DILUTION FACTOR	LOD ug/Kg	LOQ ug/Kg
Acenaphthene	ND	1	100	330
Acenaphthylene	ND	1	92	310
Anthracene	ND	1	96	320
Benzo[a]anthracene	ND	1	110	380
Benzo[a]pyrene	ND	1	100	310
Benzo[b]fluoranthene	ND	1	120	410
Benzo[k]fluoranthene	ND	1	110	380
Butylbenzylphthalate	ND	1	92	310
Chrysene	ND	1	120	410
Di-n-butylphthalate	ND	1	100	340
Dibenz[a,h]anthracene	ND	1	120	400
2,4-Dimethylphenol	ND	1	95	320
Fluoranthene	ND	1	69	230
Fluorene	ND	1	99	330
Indeno[1,2,3-cd]pyrene	ND	1	140	460
2-Methylnaphthalene	ND	1	95	320
3 & 4-Methylphenol	ND	1	100	340
Naphthalene	ND	1	85	280
Phenanthrene	ND	1	100	340
Phenol	ND	1	120	410
Pyrene	ND	1	110	360
Surrogate Recovery on 2-Fluorophenol	69.7 %			
Surrogate Recovery on Phenol-d5	69.2 %			
Surrogate Recovery on Nitrobenzene-d5	68.0 %			
Surrogate Recovery on 2-Fluorobiphenyl	70.6 %			
Surrogate Recovery on 2,4,6-Trifluorophenol	63.0 %			
Surrogate Recovery on Triphenyl d14	91.1 %			



NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298
Tel: (715) 478-2777 • Fax: (715) 478-3060

NO. 39296

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 721026400

RETURN THIS FORM WITH SAMPLES.

CLIENT <i>Thomas & Moore</i>	PROJECT TITLE <i>NSP - Ashland</i>
ADDRESS <i>15 Kessel Court Suite 201</i>	PROJECT NO. <i>05644-008</i>
CITY <i>Madison, WI</i>	STATE <i>WI</i>
ZIP <i>53711</i>	CONTACT <i>Dave Travers</i>
P.O. NO.	
PHONE <i>608/273-2886</i>	

TEM NO.	NLS LAB NO.	SAMPLE ID	DNR ID	COLLECTION		SAMPLE TYPE	GRAB/COMP.	CONTAINER/PRESERVATIVE			COLLECTION REMARKS
				DATE	TIME			C	U	P	
1.	<i>2/1/99</i>	<i>B-35 B-10'</i>		<i>8/24</i>	<i>900AM</i>	<i>SOIL</i>	<i>GRA3</i>	<i>2</i>	<i>1</i>	<i>2</i>	
2.	<i>2/1/99</i>	<i>B-36 3-5'</i>		<i>8/23</i>	<i>400PM</i>	<i>SOIL</i>	<i>GRA3</i>	<i>2</i>	<i>1</i>	<i>2</i>	
3.	<i>2/1/99</i>	<i>B-37 10-12'</i>		<i>8/23</i>	<i>1200PM</i>	<i>SOIL</i>	<i>GRA3</i>	<i>2</i>	<i>1</i>	<i>2</i>	
4.	<i>2/1/99</i>	<i>1.00" Blank</i>									
5.											
6.											
7.											
8.											
9.											
10.											
11.											
12.											

SAMPLE TYPE:
SW=surface water DW=drinking water PROD=product
WW=wastewater TIS=tissue SOIL=soil
GW=groundwater AIR=air SED=sediment
describe others

CONTAINER
P = plastic
G = glass
V = glass vial
B = plastic bag
describe others

PRESERVATIVES & PREPARATION
NP = nothing added OH = sodium hydroxide
S = sulfuric acid HA = hydrochloric & ascorbic acid
N = nitric acid H = hydrochloric acid
Z = zinc acetate
describe others

COLLECTED BY (signature) <i>[Signature]</i>		CUSTODY SEAL NO. (IF ANY)		DATE/TIME
RELINQUISHED BY (signature) <i>[Signature]</i>		RECEIVED BY (signature) <i>[Signature]</i>		DATE/TIME
RELINQUISHED BY (signature)		RECEIVED BY (signature)		DATE/TIME
DISPATCHED BY (signature)		METHOD OF TRANSPORT		DATE/TIME
RECEIVED AT NLS BY (signature) <i>[Signature]</i>		DATE/TIME <i>8-26-99 10:00</i>		CONDITION <i>21°C</i>
SEAL INTACT <input type="checkbox"/> YES <input type="checkbox"/> NO		REMARKS & OTHER INFORMATION		

1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

DUPLICATE COPY



NORTHERN LAKE SERVICE, INC.

Analytical Laboratory and Environmental Services

400 North Lake Avenue • Crandon, WI 54520-1298
Tel: (715) 478-2777 • Fax: (715) 478-3060

NO. 39296

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 721029460

RETURN THIS FORM WITH SAMPLES.

CLIENT <i>Donna Myers</i>		DNR LICENSE		FID	
ADDRESS <i>25 Kessel Court Suite 201</i>		PROJECT TITLE <i>NSP - Ashland</i>		PROJECT NO. <i>05644-008</i>	
CITY <i>Madison, WI</i>		STATE <i>WI</i>		ZIP <i>53711</i>	
		CONTACT <i>Donna Myers</i>		PHONE <i>6091273-3386</i>	

ITEM NO.	SAMPLE ID	DNR ID	COLLECTION		SAMPLE TYPE	GRAB/COMP.	CONTAINER/PRESERVATIVE			COLLECTION REMARKS
			DATE	TIME			1	2	3	
1.	B-35 8-10'		8/24	900AM	SOIL	6013	2	1	2	
2.	B-36 3-5'		8/23	400PM	SOIL	6013	2	1	2	
3.	B-37 (10-12')		8/23	1200PM	SOIL	6013	2	1	2	
4.	4.00' Blak								1	
5.										
6.										
7.										
8.										
9.										
10.										
11.										
12.										

SAMPLE TYPE:

SW=surface water
WW=wastewater
GW=groundwater

DW=drinking water
TIS=tissue
AIR=air

PROD=product
SOIL=soil
SED=sediment

describe others

CONTAINER

P = plastic
G = glass
V = glass vial
B = plastic bag

PRESERVATIVES & PREPARATION

NP = nothing added
S = sulfuric acid
N = nitric acid
Z = zinc acetate
OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid

describe others

COLLECTED BY (signature)

CUSTODY SEAL NO. (IF ANY) DATE/TIME

RELINQUISHED BY (signature)

RECEIVED BY (signature)

DATE/TIME

RELINQUISHED BY (signature)

RECEIVED BY (signature)

DATE/TIME

DISPATCHED BY (signature)

METHOD OF TRANSPORT

DATE/TIME

RECEIVED AT NLS BY (signature)

DATE/TIME

CONDITION

TEMP

SEAL INTACT

REMARKS & OTHER INFORMATION

☐ YES ☐ NO

IMPORTANT:

1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

CLIENT COPY

ORDER OF ANALYSIS

NORTHERN LAKE SERVICE, INC.
400 NORTH LAKE AVENUE
CRANDON, WI 54520 (715) 473-2777 FAX: (715) 476-3060

SEND RESULTS TO:

David P. Trainor

Dames & Moore

25 Kessel Court, Suite 201

Madison, WI 53711

CHAIN OF CUSTODY RECORD NUMBER:

39296

QUOTATION NUMBER:

ANALYZE FOR DISSOLVED OR TOTAL PARAMETERS?

COPIES TO:

Same

SEND INVOICE TO:

Same

Note "TL" for trace-level ICP analysis, and "F" for furnace analysis.

Samples on Chain of Custody line #s: _____ to be analyzed for the parameters checked below

<input type="checkbox"/> Acidity	<input type="checkbox"/> Iron	<input type="checkbox"/> Sodium	<input type="checkbox"/> Base/Neutral Extractables by 825/8270
<input type="checkbox"/> Alkalinity, total	<input type="checkbox"/> Iron Bacteria	<input type="checkbox"/> Solids, total	<input type="checkbox"/> BNAs by 825/8270
<input type="checkbox"/> Alkalinity, bicarb.	<input type="checkbox"/> Lead	<input type="checkbox"/> Solids, total dissolved	<input type="checkbox"/> PAHs by 810/8310
<input type="checkbox"/> Aluminum	<input type="checkbox"/> Lithium	<input type="checkbox"/> Solids, total suspended	<input type="checkbox"/> Chlorinated Hydrocarbons by 812/8121
<input type="checkbox"/> Antimony	<input type="checkbox"/> Magnesium	<input type="checkbox"/> Solids, total volatile	<input type="checkbox"/> Pesticides - Organochlorine 808/8081
<input type="checkbox"/> Arsenic	<input type="checkbox"/> Manganese	<input type="checkbox"/> Sulfate	<input type="checkbox"/> Pesticides - Organophosphorus by 8141
<input type="checkbox"/> Barium	<input type="checkbox"/> Mercury	<input type="checkbox"/> Sulfide	<input type="checkbox"/> PCBs by 808/8082
<input type="checkbox"/> Beryllium	<input type="checkbox"/> Mercury, low level	<input type="checkbox"/> Surfactants (MBAS)	<input type="checkbox"/> Phenols by GC 804/8040
<input type="checkbox"/> BOD - 5 Day	<input type="checkbox"/> Molybdenum	<input type="checkbox"/> Thallium	<input type="checkbox"/> Phenoxy Acid Herbicides by 8151
<input type="checkbox"/> BOD, carbonaceous	<input type="checkbox"/> Nickel	<input type="checkbox"/> Tin	<input type="checkbox"/> TCLP - metals
<input type="checkbox"/> Boron	<input type="checkbox"/> Nitrogen, Ammonia	<input type="checkbox"/> Titanium	<input type="checkbox"/> TCLP - pesticides, herbicides
<input type="checkbox"/> Bromide	<input type="checkbox"/> Nitrogen, Total	<input type="checkbox"/> TOC	<input type="checkbox"/> TCLP - BNAs
<input type="checkbox"/> Cadmium	<input type="checkbox"/> Nitrate	<input type="checkbox"/> TOX	<input type="checkbox"/> TCLP - VOCs
<input type="checkbox"/> Calcium	<input type="checkbox"/> Nitrite	<input type="checkbox"/> Vanadium	<input type="checkbox"/> SPLP - metals
<input type="checkbox"/> COD	<input type="checkbox"/> Nitrate - Nitrite	<input type="checkbox"/> Zinc	<input type="checkbox"/> SPLP -
<input type="checkbox"/> Chloride	<input type="checkbox"/> Total Kjeldahl Nitrogen	<input type="checkbox"/> Munic. Sludge Wt List	<input type="checkbox"/> ASTM - metals
<input type="checkbox"/> Chromium	<input type="checkbox"/> Total Organic Nitrogen	<input type="checkbox"/> VOCs by 8021	<input type="checkbox"/> ASTM -
<input type="checkbox"/> Chromium, hex.	<input type="checkbox"/> Oil & Grease, free	<input type="checkbox"/> VOCs by 824/8260	<input checked="" type="checkbox"/> Metals Metals per list
<input type="checkbox"/> Cobalt	<input type="checkbox"/> Oil & Grease, hexane	<input type="checkbox"/> VOCs by 8010/8020	<input checked="" type="checkbox"/> VOCs per list
<input type="checkbox"/> Coliform, fecal	<input type="checkbox"/> pH	<input type="checkbox"/> VOCs by 824.2 (SDWA)	<input checked="" type="checkbox"/> SVOCs per list
<input type="checkbox"/> Coliform, total	<input type="checkbox"/> Phenols	<input type="checkbox"/> STEC by 8020	<input checked="" type="checkbox"/> CW - per list
<input type="checkbox"/> Color	<input type="checkbox"/> Phosphorus, total	<input type="checkbox"/> PVOCs by 8020	
<input type="checkbox"/> Conductivity	<input type="checkbox"/> Phosphorus, tot. ortho	<input type="checkbox"/> GRC-WI Modified	
<input type="checkbox"/> Copper	<input type="checkbox"/> Phosphorus, dis. ortho	<input type="checkbox"/> GRC-PVOC-WI Modified	
<input checked="" type="checkbox"/> Cyanide, total	<input type="checkbox"/> Potassium	<input type="checkbox"/> GRC-WI Modified	
<input type="checkbox"/> Cyanide, amenable	<input type="checkbox"/> Selenium	<input type="checkbox"/> Naphthalene	
<input type="checkbox"/> Fluoride	<input type="checkbox"/> Silica	<input type="checkbox"/> Acid Extractables by 825/8270	
<input type="checkbox"/> Hardness	<input type="checkbox"/> Silver		

* = This is a Presence / Absence test for bacteria in drinking water

Special Instructions: SVOCs, VOCs, and inorganics (metals & CW) per
Attachment A sent with lab quote.

05644-094



DAMES & MOORE

A DAMES & MOORE GROUP COMPANY

25 Kessel Court, Suite 201
Madison, Wisconsin 53711-4227
608 273 2886 Tel
608 273 3415 Fax

January 18, 2000

Mr. Jamie Dunn
WDNR - Northern Regional Office
810 West Maple St.
Spooner, WI 54801

RE: Tabulated Groundwater Quality Results
November, 1999 Sampling Event
NSP Ashland - Former MGP

Dear Mr. Dunn:

As promised, attached is a complete revised table of the above. Please replace the data set provided you at last Thursday's meeting with this copy.

Sincerely,

DAMES & MOORE

A handwritten signature in cursive script, reading 'David P. Trainor'.

David P. Trainor
Principal

cc: Jim Musso
Dave Crass

dpt.nsp.dunn0118.ltr

TABLES

NSP, ASHLAND

November 1999 Groundwater Monitoring Results

Table 1
Summary of Monitor Well and Piezometer Construction

Well Number	Type	Elevation PVC (Ft. MSL)	Elev. Ground (Ft. MSL)	Total Borehole Depth (Ft.)	Screened Interval (Ft. below surface)	Depth Top of Filter Pack (Ft.)	Elev. Top of Filter Pack (Ft. MSL)	Depth Bottom of Filter Pack (Ft.)	Elev. Bottom of Filter Pack (Ft. MSL)	Midpoint Filter Pack Interval
NSP Wells										
EW-1*	Extraction	635.94	636.7	56.0	35-55	30.0	604.7	56.0	850.70	591.7
MW-1	Water Table	634.18	634.7	21.5	11 - 21	9.0	625.7	21.5	613.2	619.45
MW-2	Water Table	634.85	635.1	21.0	10 - 20	8.0	627.1	21.0	614.1	620.6
MW-3*	Water Table	637.83	638.2	16.0	5 - 15	3.0	635.2	16.0	622.2	628.7
MW-4	Water Table	641.03	641.7	15.5	5 - 15	4.0	637.7	15.5	626.2	631.95
MW-4A	Piezometer	641.22	641.6	35.0	21 - 26	19.0	622.6	27.0	614.6	618.6
MW-4B	Piezometer	640.98	641.5	55.5	50 - 55	48.0	593.5	55.5	586	589.75
MW-5	Water Table	633.82	634.3	28.5	18 - 28	16.0	618.3	28.5	605.8	612.05
MW-5A	Piezometer	633.72	634.2	34.0	31.5 - 33.5	30.5	603.7	34.0	600.2	601.95
MW-5B	Piezometer	633.89	634.3	51.0	44 - 49	42.0	592.3	49.0	585.3	588.8
MW-5C	Piezometer	634.33	634.6	76.0	71 - 76	69.0	565.6	76.0	558.6	562.1
MW-6	Water Table	644.88	645.2	18.0	3 - 18	2.5	642.7	18.0	627.2	634.95
MW-6A	Piezometer	644.79	645.2	48.0	42.3 - 47.3	40.8	604.4	47.5	597.7	601.05
MW-7	Water Table	612.60	610.6	15.0	5 - 15	4.5	606.1	15.0	595.6	600.85
MW-7A*	Piezometer	613.25	610.1	35.5	30 - 35	28.0	582.1	35.5	574.6	578.35
MW-8*	Water Table	634.42	635.9	16.0	6 - 16	5.0	630.9	16.0	619.9	625.4
MW-8A*	Piezometer	634.62	635.9	50.0	45 - 50	43.0	592.9	50.0	585.9	589.4
MW-9*	Water Table	637.98	638.3	15.5	5 - 15	4.0	634.3	15.5	622.8	627.8
MW-9A	Piezometer	637.86	638.34	136.5	131 - 136	128.5	509.84	136.0	502.34	506.09
MW-9B	Piezometer	638.02	638.3	111.5	106 - 110	104.0	534.3	111.5	526.8	530.55
MW-10*	Water Table	638.20	638.46	21.0	5 - 20	4.0	634.46	21.0	617.46	625.96
MW-10A*	Piezometer	638.07	638.31	51.0	45 - 50	44.0	594.31	50.0	588.31	591.31
MW-11*	Water Table	636.13	635.5	15.0	5 - 15	4.0	632.5	15.0	621.5	626.5
MW-12*	Water Table	637.09	637.5	15.0	5 - 15	4.0	633.5	15.0	622.5	627.5

Table 1
Summary of Monitor Well and Piezometer Construction

Well Number	Type	Elevation PVC (Ft. MSL)	Elev. Ground (Ft. MSL)	Total Borehole Depth (Ft.)	Screened Interval (Ft. below surface)	Depth Top of Filter Pack (Ft.)	Elev. Top of Filter Pack (Ft. MSL)	Depth Bottom of Filter Pack (Ft.)	Elev. Bottom of Filter Pack (Ft. MSL)	Midpoint Filter Pack Interval
MW-13*	Water Table	635.83	636.3	22.0	9 - 19	7.0	629.3	19.0	617.3	623.3
MW-13A	Piezometer	635.94	636.3	50.0	40 - 45	38.0	598.3	46.0	590.3	594.3
MW-13B	Piezometer	635.90	636.3	70.0	65 - 70	63.0	573.3	70.0	566.3	569.8
MW-13C	Piezometer	636.11	636.3	115.0	109.5 - 114.5	107.5	528.8	115.0	521.3	525.05
MW-14*	Water Table	639.15	639.7	17.0	5 - 15	4.0	635.7	17.0	622.7	629.7
MW-15*	Water Table	641.21	641.6	17.0	5 - 15	4.0	637.6	15.0	626.6	631.6
MW-16*	Water Table	642.20	642.5	19.0	6 - 16	5.0	637.5	17.0	625.5	631.5
MW-17*	Water Table	633.88	634.4	17.0	5 - 15	4.0	629.4	17.0	617.4	623.9
MW-17A*	Piezometer	633.68	634.4	56.0	50 - 55	48.0	586.4	56.0	578.4	582.4
Kreher Park Monitor Wells										
MW-1(NET)	Water Table	608.40	605.6	16.0	4 - 14	3.0	602.6	16.0	589.6	596.1
MW-2 (NET)	Water Table	608.23	605.3	16.0	3.5 - 13.5	2.5	602.8	16.0	589.3	596.05
MW-2A (NET)	Piezometer	607.99	605.3	52.0	45 - 50	43.0	562.3	50.0	555.3	557.8
MW-2B (NET)	Piezometer	608.05	605.3	31.0	25-30	22.0	583.3	31.0	574.3	577.8
MW-3 (NET)	Water Table	612.10	609.5	16.0	5 - 15	4.0	605.5	16.0	593.5	599.5

Notes: * Reference elevations surveyed by Dames & Moore.
Reference elevations for wells MW-1, MW-7, MW-9, MW-10, MW-10A, MW-11, MW-12, MW-14, and MW-15 surveyed in Sept. 1998.
Reference elevations for wells MW-8, MW-8A, MW-16, MW-17, and MW-17A surveyed in August 1999.
Reference elevations for wells MW-9B and MW-13C surveyed in November 1999.
Survey information for Kreher Park wells are from February 1995 SEH Report

Table 2
Summary of Groundwater Elevations

Well Number	Top of Casing Elev.	September 15, 1997		October 6, 1998		November 23, 1998		June 2, 1999		August 23, 1999		November 29, 1999	
		Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations
NSP Wells													
MW-1*	635.94	16.56	619.38	16.90	619.04	16.75	619.19	16.42	619.52	16.62	619.32	15.62	620.32
MW-1	634.18	15.08	619.10	15.37	618.81	14.72	619.46	14.99	619.19	14.34	619.84	15.21	618.97
MW-2	634.85	14.75	620.10	14.98	619.87	14.07	620.78	14.60	620.25	13.71	621.14	15.66	619.19
MW-3*	637.83	2.85	634.98	2.89	634.94	2.08	635.75	2.70	635.13	2.71	635.12	3.32	634.51
MW-4	641.03	5.85	635.18	6.54	634.49	5.60	635.43	5.43	635.60	5.07	635.96	6.63	634.40
MW-4A	641.22	13.81	627.41	14.17	627.05	13.98	627.24	13.67	627.55	13.25	627.97	14.08	627.14
MW-4B	640.98	16.62	624.36	15.92	625.06	8.90	632.08	16.01	624.97	15.51	625.47	16.00	624.98
MW-5	633.82	19.66	614.16	20.09	613.73	20.75	613.07	19.76	614.06	19.96	613.86	20.28	613.54
MW-5A	633.72	19.09	614.63	19.88	613.84	19.85	613.87	19.33	614.39	18.91	614.81	19.11	614.61
MW-5B	633.89	18.91	614.98	19.83	614.06	19.90	613.99	19.25	614.64	18.86	615.03	19.13	614.76
MW-5C	634.33	10.08	624.25	9.20	625.13	9.09	625.24	9.43	624.90	10.16	624.17	5.37	628.96
MW-6	644.88	15.28	629.60	15.86	629.02	14.03	630.75	14.03	630.85	13.10	631.78	16.95	627.93
MW-6A	644.79	20.02	624.77	19.58	625.21	19.32	625.47	19.43	625.36	20.01	624.78	19.36	625.43
MW-7	612.60	--	612.60	7.75	604.85	7.89	604.71	7.83	604.77	7.75	604.85	5.24	607.36
MW-7A*	613.25	--	--	--	--	--	--	--	--	-0.98	614.23	--	613.25
MW-8*	634.42	9.52	624.90	4.68	629.74	7.01	627.41	5.16	629.26	4.31	630.11	6.17	628.25
MW-8A*	634.62	15.22	619.40	15.40	619.22	15.06	619.56	15.18	619.44	15.21	619.41	15.02	619.60
MW-9	637.98	--	--	6.47	631.51	6.32	631.66	5.41	632.57	5.00	632.98	12.92	625.06
MW-9A	637.86	13.92	623.94	12.88	624.98	12.75	625.11	13.42	624.44	14.19	623.67	12.98	624.88
MW-9B*	638.02	--	--	--	--	--	--	--	--	--	--	12.96	625.06
MW-10*	638.20	5.28	632.92	5.33	632.87	5.46	632.74	4.81	633.39	4.54	633.66	5.03	633.17
MW-10A*	638.07	14.50	623.57	14.11	623.96	13.86	624.21	14.00	624.07	15.44	622.63	14.01	624.06
MW-11	616.13	--	--	9.66	626.47	8.70	627.13	7.81	628.10	8.11	627.82	9.61	626.50

Table 2
Summary of Groundwater Elevations

Well Number	Top of Casing Elev.	September 15, 1997		October 6, 1998		November 23, 1998		June 2, 1999		August 23, 1999		November 29, 1999	
		Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations	Depth to Water (ft.)	Groundwater Elevations
MW-12	637.09	--	--	--	--	12.35'	624.74	7.05	630.04	6.41	630.68	8.24	628.85
TW-13*	635.83	11.37	624.46	11.54	624.29	9.79	626.04	11.17	624.66	10.74	625.09	12.95	622.88
MW-13A	635.94	20.57	615.37	21.33	614.61	21.38	614.56	20.00	615.94	19.72	616.22	20.25	615.69
MW-13B	635.90	20.43	615.47	20.59	615.31	20.69	615.21	12.45	623.45	11.90	624.00	17.32	618.58
MW-13C*	636.11	--	--	--	--	--	--	--	--	--	--	--	--
MW-14*	639.15	--	--	5.02	634.13	4.95	634.20	4.37	634.78	3.87	635.28	4.43	634.72
MW-15*	641.21	--	--	4.24	636.97	4.03	637.18	4.40	636.81	4.31	636.90	4.91	636.30
MW-16*	642.20	--	--	--	--	--	--	--	--	4.61	637.56	2.88	639.32
MW-17*	633.88	--	--	--	--	--	--	--	--	5.91	627.97	3.77	630.11
MW-17A*	633.68	--	--	--	--	--	--	--	--	20.03'	613.65	19.94	611.74
Kreher Park Monitor Wells													
MW-1	608.40	7.57	608.40	7.57	600.83	8.02	600.38	7.56	600.84	6.91	601.49	6.91	600.65
MW-2	608.23	7.37	601.90	7.37	600.86	7.87	600.36	7.41	600.82	6.70	601.53	7.63	600.60
MW-2A	607.99	-4.26	612.91	-4.26	612.25	-4.31	612.30	-5.32	613.31	-4.60	612.59	--	--
MW-2B	608.05	-2.77	610.46	-2.77	610.82	-2.69	610.74	-2.80	610.85	-2.71	610.76	--	--
MW-3	612.10	11.41	612.10	11.41	600.69	11.82	600.28	11.42	600.68	10.61	601.49	11.51	600.59
TW-11	606.80	--	--	--	--	--	--	--	--	5.31	601.49	6.02	600.78
TW-12	608.45	--	--	--	--	--	--	--	--	7.21	601.24	--	--

Notes:

- * Reference elevations surveyed by Dames & Moore:
- Wells MW-1, MW-3, MW-9, MW-10, MW-11, MW-12, MW-14, and MW-15 surveyed in Sept. 1998.
- Wells MW-8, MW-8A, MW-16, MW-17, and MW-17A surveyed in August 1999.
- Wells MW-9B and MW-13C surveyed in November 1999.
- Survey information for Kreher Park wells are from February 1995 SEI Report
- 1 Water level in well still rising; water.
- 2 Depth to free-phase hydrocarbons

Table 3
Summary of Free Phase Hydrocarbon Thicknesses

Well Location	Depth to Bottom	October 6, 1998			November 23, 1998			June 2, 1999		
		Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape
EW-1	53.51	41.45	12.06	12.25	40.09	13.42	13.50	35.25	18.26	18.2
MW-7	17.88	(1)	(1)	10.14	(1)	(1)	10.01	(1)	(1)	9.91
MW-9	14.62	13.78	0.84	2.73	14.20	0.42	3.6	14.03	0.59	--
TW-13	14.82	(2)	(2)	(2)	(2)	(2)	(2)	18.10	0.31	2.2
MW-13A	45.33	43.22	2.11	4.73	43.36	1.97	3	43.37	1.96	--
MW-13B	69.82	43.56	26.26	26.1	43.56	26.26	27.6	52.28	17.54	--
MW-15	15.59	14.78	0.81	2.94	13.93	1.66	2.09	13.26	2.33	2.6
Well Location	Depth to Bottom	August 23, 1999			November 29, 1999					
		Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape	Depth to Hydrocarbon	Feet in Well	Feet on Tape
EW-1	53.51	34.31	19.20	--	(2)	(2)	16.2			
MW-7	17.88	(1)	(1)	10.44	(2)	(2)	0			
MW-9	14.62	13.02	1.6	--	(2)	(2)	< 1"			
TW-13	14.82	(2)	< 6 inches	< 6 inches	(2)	(2)	< 1"			
MW-13A	45.33	(1)	(1)	8.5	(2)	(2)	2.1			
MW-13B	69.82	(1)	(1)	26	(2)	(2)	12.1			
MW-15	15.59	(1)	(1)	10.6	(2)	(2)	0.67			

- (1) Free phase hydrocarbons not detected by interface probe, free-phase hydrocarbons observed on tape.
 (2) Product not measured
 Hydrocarbon thickness in well is difference between depth to bottom and depth to hydrocarbon/water interface.
 Hydrocarbon thickness on tape measure after probe removed from the well.

Table 4 (Page 1 of 6)
November 1999 Groundwater Monitoring Results - VOCs and Inorganics
Northern States Power, Ashland, Wisconsin

NSP Wells											
Analyte	Units	MW-1	MW-2	MW-3	MW-3 Dup	MW-4	MW-4A	MW-4B	PAL	ES	
Inorganics											
Arsenic, dissolved	µg/L	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	5	50	
Chromium, dissolved	µg/L	<0.42	<0.42	<0.68>	<0.42	1.6	<1.1>	<0.72>	10	100	
Copper, dissolved	µg/L	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	2.7	130	1,300	
Iron, dissolved	µg/L	<3.0>	28,000	4,700	4,300	2,300	17,000	40	150	300	
Lead, dissolved	µg/L	<4.5>	<1.9>	<1.4	<2.6>	<1.5>	<1.4	<1.4	1.5	15	
Nickel, dissolved	µg/L	<1.1>	<1.7>	6.0	5.6	2.4	2.8	<2.1>	20	100	
Zinc, dissolved	µg/L	<12	<12	<12	<12	<12	<12	300	2,500	5,000	
Cyanide, total	µg/L	<3.2>	110	2,400	2,400	91	84	<3.2	40	200	
VOCs											
Benzene	µg/L	<0.24	<0.24	3.0	2.9	2,200	18,000	<0.47>	0.5	5	
n-Butylbenzene	µg/L	<0.34	<0.34	51	54	1,600	7,800	<0.34	--	--	
sec-Butylbenzene	µg/L	<0.28	<0.28	<1.0	<1.0	<220	<630>	<0.28	--	--	
Isopropylbenzene	µg/L	<0.25	<0.25	<1.7>	<1.6>	<200	<250	<0.25	--	--	
p-Isopropyltoluene	µg/L	<0.56	<0.56	<0.48	<0.48	<450	<560	<0.56	--	--	
Ethylbenzene	µg/L	<0.26	<0.26	10	9.5	1,800	1,800	<0.26	140	700	
Naphthalene	µg/L	<0.25	<0.25	24	26	7,000	13,000	4.4	8	40	
n-Propylbenzene	µg/L	<0.27	<0.27	<1.0>	<0.85>	<220	<270	<0.27	--	--	
Toluene	µg/L	<0.24	<0.24	1.5	1.5	1,500	9,300	<0.24	68.6	343	
1,2,4-Trimethylbenzene	µg/L	<0.27	<0.27	14	13	<210	<270	<0.27	--	--	
1,3,5-Trimethylbenzene	µg/L	<0.27	<0.27	<0.42	<0.42	<220	<270	<0.27	96	480	
Total Trimethylbenzene	µg/L	<0.27	<0.27	14	13	<210	<270	<0.27	--	--	
o-Xylene/Styrene	µg/L	<0.47	<0.47	10	9.6	<380	3,900	<0.47	--	--	
m+p-Xylene	µg/L	<0.50	<0.50	<1.0	<1.0	<1,000>	2,600	<0.50	124	620	
Xylene, total	µg/L	<0.47	<0.47	10	9.6	<1,000>	6,500	<0.47	--	--	
Total VOCs:	µg/L	ND	ND	116.2	118.95	15,100	56,400	4.87	--	--	

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 4 (Page 2 of 6)
November 1999 Groundwater Monitoring Results - VOCs and Inorganics
Northern States Power, Ashland, Wisconsin

NSP Wells													
Analyte	Units	MIV-5	MIV-5A	MIV-5B	MIV-5C	MIV-5C: Dup	MIV-6	MIV-6A	MIV-8	PAL	ES		
Inorganics													
Arsenic, dissolved	µg/L	<4.2	<4.2	<4.2	<4.2	<4.2	--	<4.2	<4.2	5	50		
Chromium, dissolved	µg/L	<0.76>	<0.42	<0.42	<0.42	<0.42	--	<1.4>	<0.42	10	100		
Copper, dissolved	µg/L	<0.47	<0.47	<0.47	38	35	--	5.1	<0.47	130	1,300		
Iron, dissolved	µg/L	320	1,200	360	13	30	--	26	12	150	300		
Lead, dissolved	µg/L	<1.9>	<1.4	<1.4	<1.7>	<3.0>	--	13	<1.4	1.5	15		
Nickel, dissolved	µg/L	<1.7	<0.66	<0.86>	<2.1>	2.7	--	3.8	<1.7>	20	100		
Zinc, dissolved	µg/L	<12	<12	<12	26	27	--	37	<12	2,500	5,000		
Cyanide, total	µg/L	<4.0>	28	56	<3.2>	<3.2>	--	<3.2	<5.0>	40	200		
VOCs													
Benzene	µg/L	<12	17,000	20,000	0.85	<1.0	<0.24	<0.24	<0.22	0.5	5		
n-Butylbenzene	µg/L	94	2,800	2,300	<0.20	<0.34	<0.34	<0.34	<0.20	--	--		
sec-Butylbenzene	µg/L	<14	<500	<1,000	<0.50	<0.28	<0.28	<0.28	<0.50	--	--		
Isopropylbenzene	µg/L	<13	<250	<500	<0.25	<0.25	<0.25	<0.25	<0.25	--	--		
p-Isopropyltoluene	µg/L	<28	<240	<480	<0.24	<0.56	<0.56	<0.56	<0.24	--	--		
Ethylbenzene	µg/L	71	1,900	<460	<0.23	<0.26	<0.26	<0.26	<0.23	140	700		
Naphthalene	µg/L	1,200	2,000	<700	<0.35	<0.43>	<0.25	1.2	<0.35	8	40		
n-Propylbenzene	µg/L	<13	<260	<520	<0.26	<0.27	<0.27	<0.27	<0.26	--	--		
Toluene	µg/L	<12	2,100	7,200	<0.21	<0.24	<0.24	<0.24	<0.21	68.6	343		
1,2,4-Trimethylbenzene	µg/L	<13	<180	<360	<0.18	<0.27	<0.27	<0.27	<0.18				
1,3,5-Trimethylbenzene	µg/L	<14	<210	<420	<0.21	<0.27	<0.27	<0.27	<0.21	96	480		
Total Trimethylbenzene	µg/L	<13	<180	<360	<0.18	<0.27	<0.27	<0.27	<0.18				
o-Xylene/Styrene	µg/L	<24	<190	<380	<0.19	<0.47	<0.47	<0.47	<0.19				
m+p-Xylene	µg/L	<25	<520	<1,000	<0.52	<0.50	<0.50	<0.50	<0.52	124	620		
Xylene, total	µg/L	<24	<190	<380	<0.19	<0.47	<0.47	<0.47	<0.19				
Total VOCs:	µg/L	1,365	25,800	29,500	0.85	<0.43>	ND	1.2	ND				

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 4 (Page 3 of 6)
November 1999 Groundwater Monitoring Results - VOCs and Inorganics
Northern States Power, Ashland, Wisconsin

NSP Wells													
Analyte	Units	MIV-8A	MIV-9	MIV-9A	MIV-9A Dup	MIV-9B	MIV-10	MIV-10A	MIV-10A Dup	PAL	ES		
Inorganics													
Arsenic, dissolved	µg/L	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	<4.8>	5	50		
Chromium, dissolved	µg/L	<0.42	1.6	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	10	100		
Copper, dissolved	µg/L	<0.82>	<0.47	<0.47	<0.47	<0.47	31	<0.47	<0.47	130	1,300		
Iron, dissolved	µg/L	75	11,000	37	42	85	<3.3>	4.3	5.2	150	300		
Lead, dissolved	µg/L	<1.4	<1.4	<1.4	<1.4	<2.0>	<4.3>	<2.4>	<1.4	1.5	15		
Nickel, dissolved	µg/L	<1.1>	<2.2>	<0.66	<0.66	<1.6>	4.7	<1.5>	<1.2>	20	100		
Zinc, dissolved	µg/L	17	<12	<12	<12	<12	17	15	19	2,500	5,000		
Cyanide, total	µg/L	<8.0>	780	79	74	51	<3.2	<3.2	<3.2	40	200		
VOCs													
Benzene	µg/L	18,000	56,000	5,400	5,600	180	<0.24	<0.24	<0.24	0.5	5		
n-Butylbenzene	µg/L	<250>	<1,700	<170	<170	250	<0.34	<0.34	<0.34	--	--		
sec-Butylbenzene	µg/L	<500	<1,400	<140	<140	<16>	<0.28	<0.28	<0.28	--	--		
Isopropylbenzene	µg/L	<250	<1,300	<130	<130	<13	<0.25	<0.25	<0.25	--	--		
p-Isopropyltoluene	µg/L	<240	<2,800	<280	<280	<28	<0.56	<0.56	<0.56	--	--		
Ethylbenzene	µg/L	<230	<1,800>	<130	<130	<34>	<0.26	<0.26	<0.26	140	700		
Naphthalene	µg/L	<350	24,000	1,500	1,500	610	<0.25	<0.25	<0.25	8	40		
n-Propylbenzene	µg/L	<260	<1,300	<130	<130	<13	<0.27	<0.27	<0.27	--	--		
Toluene	µg/L	<410>	11,000	1,600	1,600	390	<0.24	<0.24	<0.24	68.6	343		
1,2,4-Trimethylbenzene	µg/L	<180	<1,300	<130	<130	<37>	<0.27	<0.27	<0.27	96	480		
1,3,5-Trimethylbenzene	µg/L	<210	<1,400	<140	<140	<14	<0.27	<0.27	<0.27				
Total Trimethylbenzene	µg/L	<180	<1,300	<130	<130	<37>	<0.27	<0.27	<0.27	124	620		
o-Xylene/Styrene	µg/L	<190	<2,400	<240	<240	270	<0.47	<0.47	<0.47				
m+p-Xylene	µg/L	<520	<2,500	<250	<250	150	<0.50	<0.50	<0.50	124	620		
Xylene, total	µg/L	<190	<2,400	<240	<240	420	<0.47	<0.47	<0.47				
Total VOCs:	µg/L	18,660	92,800	8,500	8,700	1,937	ND	ND	ND				

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
Concentrations exceeding the ES have been shaded.

Table 4 (Page 4 of 6)
November 1999 Groundwater Monitoring Results - VOCs and Inorganics
Northern States Power, Ashland, Wisconsin

NSP Wells											
Analyte	Units	MW-11	MW-12	TW-13	MW-13A	MW-13C	MW-14	PAT.	ES		
Inorganics											
Arsenic, dissolved	µg/L	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	5	50		
Chromium, dissolved	µg/L	<0.42	<0.42	<0.47>	<0.42	<0.42	<0.75>	10	100		
Copper, dissolved	µg/L	<0.47	<0.87>	5.6	<1.2>	<0.47	<0.47	130	1,300		
Iron, dissolved	µg/L	21	38	520	370	7.8	37,000	150	300		
Lead, dissolved	µg/L	<1.8>	<1.4	<1.4	<1.4	<1.4	<1.4	1.5	15		
Nickel, dissolved	µg/L	<0.66	2.4	<0.83>	<1.0>	<1.0>	2.4	20	100		
Zinc, dissolved	µg/L	12	<12	<12	<12	<12	14	2,500	5,000		
Cyanide, total	µg/L	13	41	190	330	<4.0>	110	40	200		
VOCs											
Benzene	µg/L	<0.34	190	8,700	7,000	34	12,000	0.5	5		
n-Butylbenzene	µg/L	<0.34	65	2,800	2,400	29	<340	--	--		
sec-Butylbenzene	µg/L	<0.28	<25	<280	<360>	<1.4	<280	--	--		
Isopropylbenzene	µg/L	<0.25	<13	<250	<250	<1.3	<250	--	--		
p-Isopropyltoluene	µg/L	<0.56	<12	<560	<560	<2.8	<560	--	--		
Ethylbenzene	µg/L	<0.26	50	2,300	<260	<2.9>	2,900	140	700		
Naphthalene	µg/L	<0.25	730	12,000	11,000	88	9,000	8	40		
n-Propylbenzene	µg/L	<0.27	<13	<270	<270	<1.3	<270	--	--		
Toluene	µg/L	<0.24	<11	5,100	1,500	32	7,400	68.6	343		
1,2,4-Trimethylbenzene	µg/L	<0.27	35	<270	<270	<3.2>	<270	96	480		
1,3,5-Trimethylbenzene	µg/L	<0.27	<11	<270	<270	<1.4	<270				
Total Trimethylbenzene	µg/L	<0.27	35	<270	<270	<3.2>	<270				
o-Xylene/Styrene	µg/L	<0.47	63	<470	<820>	18	<470				
m+p-Xylene	µg/L	<0.50	<26	<1,100>	<500	11	<1,200>	124	620		
Xylene, total	µg/L	<0.47	63	<1,100>	<820>	29	<1,200>				
Total VOCs:	µg/L	ND	1,133	32,000	23,080	218.1	32,500				

< - Less than Limit of Detection, >> - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 4 (Page 5 of 6)
November 1999 Groundwater Monitoring Results - VOCs and Inorganics
Northern States Power, Ashland, Wisconsin

NSP Wells									
Analyte	Units	MW-15	MW-16	MW-17	MW-17A	Trip Blank	PAL	ES	
Inorganics									
Arsenic, dissolved	µg/L	<4.2	<4.2	<4.2	<4.2	--	5	50	
Chromium, dissolved	µg/L	6.8	<0.42	<0.44>	<0.42	--	10	100	
Copper, dissolved	µg/L	<1.7>	32	<0.47	<0.47	--	130	1,300	
Iron, dissolved	µg/L	8,400	110	4.5	<3.0>	--	150	300	
Lead, dissolved	µg/L	<2.0>	<1.4	<1.8>	<2.2>	--	1.5	15	
Nickel, dissolved	µg/L	18	7.5	<1.5>	<1.1>	--	20	100	
Zinc, dissolved	µg/L	<12	<12	<12	<12	--	2,500	5,000	
Cyanide, total	µg/L	5,300	<3.2	<3.2	<3.2	--	40	200	
VOCs									
Benzene	µg/L	130,000	16	<0.24	<0.24	<0.24	0.5	5	
n-Butylbenzene	µg/L	<3,400	<0.20	<0.34	<0.34	<0.34	--	--	
sec-Butylbenzene	µg/L	<2,800	<0.50	<0.28	<0.28	<0.28	--	--	
Isopropylbenzene	µg/L	<2,500	<0.25	<0.25	<0.25	<0.25	--	--	
p-Isopropyltoluene	µg/L	<5,600	<0.24	<0.56	<0.56	<0.56	--	--	
Ethylbenzene	µg/L	<2,600	<0.23	<0.26	<0.26	<0.26	140	700	
Naphthalene	µg/L	24,000	<0.35	<0.25	<0.25	1.3	8	40	
n-Propylbenzene	µg/L	<2,700	<0.26	<0.27	<0.27	<0.27	--	--	
Toluene	µg/L	36,000	<0.21	<0.24	<0.24	<0.24	68.6	343	
1,2,4-Trimethylbenzene	µg/L	<2,700	<0.18	<0.27	<0.27	<0.27			
1,3,5-Trimethylbenzene	µg/L	<2,700	<0.21	<0.27	<0.27	<0.27	96	480	
Total Trimethylbenzene	µg/L	<2,700	<0.18	<0.27	<0.27	<0.27			
o-Xylene/Styrene	µg/L	<4,700	<0.19	<0.47	<0.47	<0.47			
m+p-Xylene	µg/L	<5,000	<0.52	<0.50	<0.50	<0.50	124	620	
Xylene, total	µg/L	<4,700	<0.19	<0.47	<0.47	<0.47			
Total VOCs:	µg/L	190,000	16	ND	ND	1.3			

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 4 (Page 6 of 6)
November 1999 Groundwater Monitoring Results - VOCs and Inorganics
Northern States Power, Ashland, Wisconsin

Kreher Park Wells													
Analyte	Units	MW-1 (NET)	MW-2 (NET)	MW-2A (NET)	MW-2B (NET)	MW-3 (NET)	MW-7	TW-11	PAL				ES
Inorganics													
Arsenic, dissolved	µg/L	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	5	50			
Chromium, dissolved	µg/L	<0.42	<1.0>	<0.42	<0.42	<0.42	<0.42	<0.56>	10	100			
Copper, dissolved	µg/L	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	130	1,300			
Iron, dissolved	µg/L	2,500	4,600	8.8	210	2,900	3,500	15,000	150	300			
Lead, dissolved	µg/L	<1.4	<2.1>	<1.4	<1.4	<1.4	<1.4	<2.6>	1.5	15			
Nickel, dissolved	µg/L	<0.70>	<0.95>	3.2	<0.66	<0.76>	<1.0>	<1.0>	20	100			
Zinc, dissolved	µg/L	<12	<12	<12	<12	<12	<12	<12	2,500	5,000			
Cyanide, total	µg/L	<6.0>	12	<3.2	24	<6.0>	91	<3.2	40	200			
VOCs													
Benzene	µg/L	2,300	690	8.6	24,000	1.6	320	<60	0.5	5			
n-Butylbenzene	µg/L	<40	83	<0.20	6,200	1.2	<85	570	--	--			
sec-Butylbenzene	µg/L	<100	<12	<0.50	<100	<0.37>	<70	<70	--	--			
Isopropylbenzene	µg/L	<50	<6.3	<0.25	<500	<0.25	<63	<63	--	--			
p-Isopropyltoluene	µg/L	<48	<6.0	<0.24	<480	<0.56	<140	<140	--	--			
Ethylbenzene	µg/L	430	200	<0.23	3,600	<0.26	270	520	140	700			
Naphthalene	µg/L	1,200	920	1.7	4,100	8.0	2,500	4,200	8	40			
n-Propylbenzene	µg/L	<52	<6.4	<0.26	<520	<0.27	<67	<67	--	--			
Toluene	µg/L	<42	25	<0.40>	13,000	<0.24	<60	<60	68.6	343			
1,2,4-Trimethylbenzene	µg/L	<100>	49	<0.18	<600>	<0.27	<200>	<67	96	480			
1,3,5-Trimethylbenzene	µg/L	<42	<8.4>	<0.21	<420	<0.27	<68	<68	--	--			
Total Trimethylbenzene	µg/L	<100>	49	<0.18	<600>	<0.27	<200>	<67	--	--			
o-Xylenic/Styrene	µg/L	<99>	100	<0.19	<380	<0.47	<120	<120	124	620			
m+p-Xylene	µg/L	<100	110	<0.52	<1,000	<0.50	<120	<120	--	--			
Xylene, total	µg/L	<99>	210	<0.19	<380	<0.47	<120	<120	--	--			
Total VOCs:	µg/L	4,129	2,177	10.7	51,500	11.17	3,290	5,290	--	--			

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 5 (Page 1 of 6)
November 1999 Groundwater Results - SVOCs
Northern States Power, Ashland, Wisconsin

NSP Wells										
Analyte	Units	MW-1	MW-2	MW-3	MW-3 Dup	MW-4	MW-4A	MW-4B	PAL	ES
Acenaphthene	µg/L	<1.3	<1.3	36	33	<110>	<67	<1.3	--	--
Acenaphthylene	µg/L	<1.4	<1.4	9.7	8.1	<170>	370	<1.4	--	--
Anthracene	µg/L	<1.2	<1.2	5.7	4.5	<59	<59	<1.2	600	3,000
Benzo(a)anthracene	µg/L	<0.76	<0.76	<0.76	<0.76	<38	<38	<0.76	--	--
Benzo(a)pyrene	µg/L	<1.2	<2.9>	<1.2	<1.2	<60	<60	<1.2	0.02	0.2
Benzo(b)fluoranthene	µg/L	<0.64	3.8	<0.64	<0.64	<32	<32	<0.64	0.02	0.2
Benzo(g,h,i)perylene	µg/L	<1.2	<2.9>	<1.2	<1.2	<58	<58	<1.2	--	--
Benzo(k)fluoranthene	µg/L	<1.3	<1.5>	<1.3	<1.3	<66	<66	<1.3	--	--
Butyl Benzyl Phthalate	µg/L	<1.1	<1.1	<1.1	<1.1	<53	<53	<1.1	--	--
Chrysene	µg/L	<0.68	2.6	<0.68	<0.68	<34	<34	<0.68	0.02	0.2
Di-n-Butylphthalate	µg/L	<1.6	<1.6	<1.6	<1.6	<82	<82	<1.6	--	--
Dibenzo (a,h) Anthracene	µg/L	<0.69	<0.69	<0.69	<0.69	<34	<34	<0.69	20	100
2,4-Dimethylphenol	µg/L	<3.1	<3.1	<3.1	<3.1	<150	630	<3.1	--	--
Fluoranthene	µg/L	<0.67	<2.1>	3.9	2.9	<34	<34	<0.67	80	400
Fluorene	µg/L	<1.1	<1.1	4.6	<3.6>	<74>	<74>	<1.1	80	400
Indeno (1,2,3-cd) Pyrene	µg/L	<0.69	<0.69	<0.69	<0.69	<34	<34	<0.69	--	--
2-Methylnaphthalene	µg/L	<1.4	<1.4	44	<1.4	1,000	1,300	<1.4	--	--
2-Methylphenol	µg/L	<1.3	<1.3	<1.3	<1.3	<66	410	<1.3	--	--
3 & 4-Methylphenol	µg/L	<1.5	<1.5	<1.5	<1.5	<75	780	<1.5	--	--
Naphthalene	µg/L	<1.5	<1.5	16	14	4,100	7,500	<2.1>	8	40
Phenanthrene	µg/L	<0.65	<1.5>	18	15	<89>	<79>	<0.65	--	--
Phenol	µg/L	<0.76	<0.76	<0.76	<0.76	<38	350	<0.76	1,200	6,000
Pyrene	µg/L	<1.3	<2.8>	<3.7>	<3.1>	<64	<64	<1.3	50	250
Total SVOCs:	µg/L	ND	20.1	141.6	55.2	5,543	11,493	<2.1>		

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
Concentrations exceeding the ES have been shaded.

Table 5 (Page 2 of 6)
November 1999 Groundwater Results - SVOCs
Northern States Power, Ashland, Wisconsin

Analyte	Units	NSP Wells										P.A.L.	ES
		NIW-5	NIW-5A	NIW-5B	NIW-5C	NIW-5C Dup	NIW-6A	NIW-8	NIW-8A				
Aceanthrene	µg/L	<260>	33	<27	<1.3	<1.3	<1.3	<1.3	<1.3	<13	--	--	
Aceanthylene	µg/L	93	21	<27	<1.4	<1.4	<1.4	<1.4	<1.4	<14	--	--	
Anthracene	µg/L	360	<1.7>	<24	<1.2	<1.2	<1.2	<1.2	<1.2	<12	600	3,000	
Benzo(a)anthracene	µg/L	140	<0.76	<15	<0.76	<0.76	<0.76	<0.76	<0.76	<7.6	--	--	
Benzo(a)pyrene	µg/L	120	<1.2	<24	<1.2	<1.2	<1.2	<1.2	<1.2	<12	0.02	0.2	
Benzo(b)fluoranthene	µg/L	75	<0.64	<13	<0.64	<0.64	<0.64	<0.64	<0.64	<6.4	0.02	0.2	
Benzo(g,h,i)perylene	µg/L	54	<1.2	<23	<1.2	<1.2	<1.2	<1.2	<1.2	<12	--	--	
Benzo(k)fluoranthene	µg/L	77	<1.3	<26	<1.3	<1.3	<1.3	<1.3	<1.3	<13	--	--	
Butyl Benzyl Phthalate	µg/L	<11	<1.1	<21	<1.1	<1.1	<1.1	<1.1	<1.1	<11	--	--	
Chrysene	µg/L	130	<0.68	<14	<0.68	<0.68	<0.68	<0.68	<0.68	<6.8	0.02	0.2	
Di-n-Butylphthalate	µg/L	<16	<1.6	<33	<1.6	<1.6	<1.6	<1.6	<1.6	<16	--	--	
Dibenzo (a,h) Anthracene	µg/L	<6.9	<0.69	<14	<0.69	<0.69	<0.69	<0.69	<0.69	<6.9	20	100	
2,4-Dimethylphenol	µg/L	<31	620	4,400	<3.1	<3.1	<3.1	<3.1	<3.1	150	--	--	
Fluoranthene	µg/L	310	<1.7>	<13	<0.67	<0.67	<0.67	<0.67	<0.67	<6.7	80	400	
Fluorene	µg/L	450	<3.0>	<22	<1.1	<1.1	<1.1	<1.1	<1.1	<11	80	400	
Indeno (1,2,3-cd) Pyrene	µg/L	55	<0.69	<14	<0.69	<0.69	<0.69	<0.69	<0.69	<6.9	--	--	
2-Methylnaphthalene	µg/L	<160>	270	310	<1.4	<1.4	<1.4	<1.4	<1.4	<14	--	--	
2-Methylphenol	µg/L	<13	220	3,300	<1.3	<1.3	<1.3	<1.3	<1.3	130	--	--	
3 & 4-Methylphenol	µg/L	<15	190	5,500	<1.5	<1.5	<1.5	<1.5	<1.5	200	--	--	
Naphthalene	µg/L	1,100	2,200	3,400	<1.5	<1.5	<1.5	<1.5	<1.5	110	8	40	
Phenanthrene	µg/L	<200>	7.2	<13	<0.65	<0.65	<0.65	<0.65	<0.65	<6.5	--	--	
Phenol	µg/L	<7.6	11	2,500	<0.76	<0.76	<0.76	<0.76	<0.76	59	1,200	6,000	
Pyrene	µg/L	400	<1.7>	<26	<1.3	<1.3	<1.3	<1.3	<1.3	<13	50	250	
Total SVOCs:	µg/L	3,984	3,580.3	19,510	ND	ND	ND	ND	649				

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 5 (Page 3 of 6)
November 1999 Groundwater Results - SVOCs
Northern States Power, Ashland, Wisconsin

NSP Wells										
Analyte	Units	MTV-9	MTV-9A	MTV-9A Dup	MTV-9B	MTV-10	MTV-10A	MTV-10A Dup	PAL	ES
Acenaphthene	µg/L	4,900	<6.7	<2.7	<67	<1.3	<1.3	<1.3	--	--
Acenaphthylene	µg/L	5,400	<14>	<5.8>	910	<1.4	<1.4	<1.4	--	--
Anthracene	µg/L	3,900	<5.9	<2.8>	440	<1.2	<1.2	<1.2	600	3,000
Benzo(a)anthracene	µg/L	1,900	<3.8	<1.5	<38	<0.76	<0.76	<0.76	--	--
Benzo(a)pyrene	µg/L	1,900	<6.0	<2.4	<60	<1.2	<1.2	<1.2	0.02	0.2
Benzo(b)fluoranthene	µg/L	1,000	<3.2	<1.3	<32	<0.64	<0.64	<0.64	0.02	0.2
Benzo(g,h,i)perylene	µg/L	930	<5.8	<2.3	<58	<1.2	<1.2	<1.2	--	--
Benzo(k)fluoranthene	µg/L	1,200	<6.6	<2.6	<66	<1.3	<1.3	<1.3	--	--
Butyl Benzyl Phthalate	µg/L	<110	<5.3	<2.1	<53	<1.1	<1.1	<1.1	--	--
Chrysene	µg/L	1,800	<3.4	<4.1>	<34	<0.68	<0.68	<0.68	0.02	0.2
Di-n-Butylphthalate	µg/L	<160	<8.2	<3.3	<82	<1.6	<1.6	<1.6	--	--
Dibenzo (a,h) Anthracene	µg/L	350	<3.4	<1.4	<34	<0.69	<0.69	<0.69	20	100
2,4-Dimethylphenol	µg/L	<440>	<1.5	<6.2	<150	<3.1	<3.1	<3.1	--	--
Fluoranthene	µg/L	4,700	<6.9>	<3.8>	500	<0.67	<0.67	<0.67	80	400
Fluorene	µg/L	4,100	<5.4	<2.2	470	<1.1	<1.1	<1.1	80	400
Indeno (1,2,3-cd) Pyrene	µg/L	820	<3.4	<1.4	<34	<0.69	<0.69	<0.69	--	--
2-Methylnaphthalene	µg/L	25,000	<22>	<7.4>	2,300	<1.4	<1.4	<1.4	--	--
2-Methylphenol	µg/L	<200>	<7.9>	<2.6	<66	<1.3	<1.3	<1.3	--	--
3 & 4-Methylphenol	µg/L	<310>	<20>	<5.9>	<75	<1.5	<1.5	<1.5	--	--
Naphthalene	µg/L	67,000	70	20	3,300	<1.5	<1.5	<1.5	8	40
Phenanthrene	µg/L	15,000	<9.6>	4.7	1,100	<0.65	<0.65	<0.65	--	--
Phenol	µg/L	<140>	<6.4>	<2.0>	<38	<0.76	<0.76	<0.76	1,200	6,000
Pyrene	µg/L	<2,300>	<7.2>	<2.6	<64	<1.3	<1.3	<1.3	50	250
Total SVOCs:	µg/L	143,290	164	56.5	9,020	ND	ND	ND		

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

Table 5 (Page 4 of 6)
November 1999 Groundwater Results - SVOCs
Northern States Power, Ashland, Wisconsin

NSP Wells									
Analyte	Units	MW-11	MW-12	TV-13	MW-13A	MW-13C	MW-14	PAT.	ES
Acenaphthene	µg/L	<1.3	<27	<1,600>	<67	<1.3	<130>	--	--
Acenaphthylene	µg/L	<1.4	<27	<880>	370	<1.4	<210>	--	--
Anthracene	µg/L	<1.2	<24	<1,000>	<64>	<1.2	<64>	600	3,000
Benzo(a)anthracene	µg/L	<0.76	<15	<340>	<38	<0.76	<38	2	--
Benzo(a)pyrene	µg/L	<1.2	<24	<1,000>	<60	<1.2	<60	0.02	0.2
Benzo(b)fluoranthene	µg/L	<0.64	<13	<260	<32	<0.64	<32	0.02	0.2
Benzo(g,h,i)perylene	µg/L	<1.2	<23	<470	<58	<1.2	<58	--	--
Benzo(k)fluoranthene	µg/L	<1.3	<26	<530	<66	<1.3	<66	--	--
Butyl Benzyl Phthalate	µg/L	<1.1	<21	<420	<53	<1.1	<53	--	--
Chrysene	µg/L	<0.68	<14	910	<34	<0.68	<34	0.02	0.2
Di-n-Butylphthalate	µg/L	<1.6	<33	<660	<82	<1.6	<82	--	--
Dibenzo (a,h) Anthracene	µg/L	<0.69	<14	<280	<34	<0.69	<34	20	100
2,4-Dimethylphenol	µg/L	<3.1	<62	<1,200	<150	<3.1	<260>	--	--
Fluoranthene	µg/L	<0.67	<13	<630>	<34	<0.67	<70>	80	400
Fluorene	µg/L	<1.1	<22	<950>	<110>	<1.1	<79>	80	400
Indeno (1,2,3-cd) Pyrene	µg/L	<0.69	<14	<280	<34	<0.69	<34	--	--
2-Methylnaphthalene	µg/L	<1.4	<85>	4,300	1,200	<1.4	1,000	--	--
2-Methylphenol	µg/L	<1.3	<26	<520	<66	<1.3	<140>	--	--
3 & 4-Methylphenol	µg/L	<1.5	<30	<600	<97>	<1.5	290	--	--
Naphthalene	µg/L	<1.5	240	11,000	3,800	<1.5	6,100	8	40
Phenanthrene	µg/L	<0.65	<13	2,800	150	<0.65	130	--	--
Phenol	µg/L	<0.76	<15	<300	<38	<0.76	<76>	1,200	6,000
Pyrene	µg/L	<1.3	<26	<520	<64	<1.3	<64	50	250
Total SVOCs:		ND	325	25,410	5,791	ND	8,549		

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
Concentrations exceeding the ES have been shaded.

Table 5 (Page 5 of 6)
November 1999 Groundwater Results - SVOCs
Northern States Power, Ashland, Wisconsin

Analyte	Units	NSP Wells				PAL	ES
		NIW-15	NIW-16	NIW-17	NIW-17A		
Acenaphthene	µg/L	<19,000	<1.3	<1.3	<1.3	--	--
Acenaphthylene	µg/L	<54,000>	<1.4	<1.4	<1.4	--	--
Anthracene	µg/L	<37,000>	<1.2	<1.2	<1.2	600	3,000
Benzo(a)anthracene	µg/L	<11,000>	<0.76	<0.76	<0.76	--	--
Benzo(a)pyrene	µg/L	<35,000>	<1.2	<1.2	<1.2	0.02	0.2
Benzo(b)fluoranthene	µg/L	<9,000	<0.64	<0.64	<0.64	0.02	0.2
Benzo(g,h,i)perylene	µg/L	<16,000	<1.2	<1.2	<1.2	--	--
Benzo(k)fluoranthene	µg/L	<18,000	<1.3	<1.3	<1.3	--	--
Butyl Benzyl Phthalate	µg/L	<15,000	<1.2>	<1.1	<1.1	--	--
Chrysene	µg/L	32,000	<0.68	<0.68	<0.68	0.02	0.2
Di-n-Butylphthalate	µg/L	<23,000	<1.6	<1.6	<1.6	--	--
Dibenzo (a,h) Anthracene	µg/L	<9,700	<0.69	<0.69	<0.69	20	100
2,4-Dimethylphenol	µg/L	<43,000	<3.1	<3.1	<3.1	--	--
Fluoranthene	µg/L	43,000	<0.67	<0.67	<0.67	80	400
Fluorene	µg/L	<35,000>	<1.1	<1.1	<1.1	80	400
Indeno (1,2,3-cd) Pyrene	µg/L	<9,700	<0.69	<0.69	<0.69	--	--
2-Methylanthracene	µg/L	160,000	<1.4	<1.4	<1.4	--	--
2-Methylphenol	µg/L	<18,000	<1.3	<1.3	<1.3	--	--
3 & 4-Methylphenol	µg/L	<21,000	<1.5	<1.5	<1.5	--	--
Naphthalene	µg/L	450,000	<1.5	<1.5	<1.5	8	40
Phenanthrene	µg/L	98,000	<0.65	<0.65	<0.65	--	--
Phenol	µg/L	<11,000	<0.76	<0.76	<0.76	1,200	6,000
Pyrene	µg/L	<18,000	<1.3	<1.3	<1.3	50	250
Total SVOCs:	µg/L	955,000	<1.2>	ND	ND		

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
Concentrations exceeding the ES have been shaded.

Table 5 (Page 6 of 6)
November 1999 Groundwater Results - SVOCs
Northern States Power, Ashland, Wisconsin

Kreher Park Wells										
Analyte	Units	MW-1 (NET)	MW-2 (NET)	MW-2A (NET)	MW-2B (NET)	MW-3 (NET)	MW-7	TW-11	PAL	ES
Acenaphthene	µg/L	310	40	<1.3	<54	<67	<1,100>	190	--	--
Acenaphthylene	µg/L	<64>	<16>	<1.4	<130>	<68	<540	<55>	--	--
Anthracene	µg/L	<69>	<14>	<1.2	<47	<59	<660>	<50>	600	3,000
Benzo(a)anthracene	µg/L	<30	17	<0.76	<30	<38	<300	<30	--	--
Benzo(a)pyrene	µg/L	<100>	32	<1.2	<48	<120>	<480	<48	0.02	0.2
Benzo(b)fluoranthene	µg/L	<26	22	<0.64	<26	<32	<260	<26	0.02	0.2
Benzo(g,h,i)perylene	µg/L	<47	22	<1.2	<47	<58	<470	<47	--	--
Benzo(k)fluoranthene	µg/L	<53	<16>	<1.3	<53	<66	<530	<53	--	--
Butyl Benzyl Phthalate	µg/L	<42	<4.2	<1.1	<42	<53	<420	<42	--	--
Chrysene	µg/L	<84>	23	<0.68	<27	<96>	<270	<27	0.02	0.2
Di-n-Butylphthalate	µg/L	<66	<6.6	<1.6	<66	<82	<660	<66	--	--
Dibenzo (a,h) Anthracene	µg/L	<28	<2.8	<0.69	<28	<34	<280	<28	20	100
2,4-Dimethylphenol	µg/L	<120	<12	<3.1	800	<150	<1,200	<120	--	--
Fluoranthene	µg/L	98	33	<0.67	<27	<85>	<860>	<65>	80	400
Fluorene	µg/L	<120>	<11>	<1.1	<44	<54	<440	<62>	80	400
Indeno (1,2,3-cd) Pyrene	µg/L	<28	20	<0.69	<28	<34	<280	<28	--	--
2-Methylnaphthalene	µg/L	520	32	<1.4	460	<72	<1,100>	<110>	--	--
2-Methylphenol	µg/L	<52	<5.2	<1.3	500	<66	<520	<52	--	--
3 & 4-Methylphenol	µg/L	<60	<6.0	<1.5	700	<75	<600	<60	--	--
Naphthalene	µg/L	1,500	260	<1.5	4,500	<77	2,300	920	8	40
Phenanthrene	µg/L	210	17	<0.65	<26	<32	1,600	140	--	--
Phenol	µg/L	<30	<5.0>	<0.76	<66>	<38	<300	<30	1,200	6,000
Pyrene	µg/L	<52	<11>	<1.3	<52	<64	<520	<71>	50	250
Total SVOCs:	µg/L	3,075	591	NID	7,156	<301>	7,620	1,663		

< - Less than Limit of Detection, > - Less than Limit of Quantitation, but greater than Limit of Detection
 Concentrations exceeding the ES have been shaded.

For each point of detection, I should point out a concentration, but provide that point of detection
and a definition according to the 1% have been studied

Table 5 (Page 6 of 6)
November 1999 Groundwater Results - SVOCs
Northern States Power, Ashland, Wisconsin

Analyte	Units	Kreher Park Wells										TSS	VS
		MW-1 (NE2),	MW-2 (NE2),	MW-2A (NE2),	MW-2B (NE2),	MW-3 (NE2),	MW-3	MW-3A	MW-3B	MW-3C	MW-3D		
Acenaphthene	µg/L	310	40	<1.3	<54	<67	<1,100>	190	--	--	--	--	--
Acenaphthylene	µg/L	<64>	<16>	<1.4	<130>	<68	<540	<55>	--	--	--	--	--
Anthracene	µg/L	<69>	<14>	<1.2	<47	<59	<660>	<50>	600	3,000	--	--	--
Benzo(a)anthracene	µg/L	<30	17	<0.76	<30	<38	<300	<30	--	--	--	--	--
Benzo(a)pyrene	µg/L	<100>	32	<1.2	<48	<120>	<480	<48	0.02	0.2	--	--	--
Benzo(b)fluoranthene	µg/L	<26	22	<0.64	<26	<32	<260	<26	0.02	0.2	--	--	--
Benzo(g,h,i)perylene	µg/L	<47	22	<1.2	<47	<58	<470	<47	--	--	--	--	--
Benzo(k)fluoranthene	µg/L	<53	<16>	<1.3	<53	<66	<530	<53	--	--	--	--	--
Butyl Benzyl Phthalate	µg/L	<42	<4.2	<1.1	<42	<53	<420	<42	--	--	--	--	--
Chrysene	µg/L	<84>	23	<0.68	<27	<96>	<270	<27	0.02	0.2	--	--	--
Di-n-Butylphthalate	µg/L	<66	<6.6	<1.6	<66	<82	<660	<66	--	--	--	--	--
Dibenzo (a,h) Anthracene	µg/L	<28	<2.8	<0.69	<28	<34	<280	<28	20	100	--	--	--
2,4-Dimethylphenol	µg/L	<120	<12	<3.1	800	<150	<1,200	<120	--	--	--	--	--
Fluoranthene	µg/L	98	33	<0.67	<27	<85>	<860>	<65>	80	400	--	--	--
Fluorene	µg/L	<120>	<11>	<1.1	<44	<54	<440	<62>	80	400	--	--	--
Indeno (1,2,3-cd) Pyrene	µg/L	<28	20	<0.69	<28	<34	<280	<28	--	--	--	--	--
2-Methylnaphthalene	µg/L	520	32	<1.4	460	<72	<1,100>	<110>	--	--	--	--	--
2-Methylphenol	µg/L	<52	52	<1.1	500	66	500	11	--	--	--	--	--